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U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 5, Land and Chemicals Division
RCRA Branch, LR-8J
77 West Jackson Boulevard
Chicago, Illinois 60604

RCRA SAMPLING INSPECTION REPORT

INSPECTION DATE: March 30, 2016

SITE NAME: Ortek, Inc.

ADDRESS: 7601 West 47th Street
McCook, Illinois 60525

EPA ID NUMBER: ILD000646786

NAICS CODE: 562219 Other Non-Hazardous Waste Treatment and Disposal

FACILITY CONTACT: Lowell Aughenbaugh
President

EPA PROJECT
MANAGER: Brian Kennedy
Environmental Engineer
Compliance Section 2
RCRA Branch
Land and Chemicals Division

PREPARED BY:

Brian Kennedy
Brian Kennedy

6/10/2016
Date

APPROVED BY:

Julie Morris
Julie Morris, Chief
Compliance Section 2

6/10/16
Date

Purpose of Inspection

An unannounced sampling inspection of Ortek, Inc. (hereinafter “Ortek” or “facility”) located at 7601 West 47th Street, McCook, Illinois took place on March 30, 2016. The inspection was conducted by U.S. Environmental Protection Agency personnel as part of ongoing enforcement investigation to evaluate the facility’s compliance with certain provisions of the Resource Conservation and Recovery Act (RCRA) and its implementing regulations found in the Illinois Administrative Code and the Code of Federal Regulations.

Participants

The following persons were present for part or all of the inspection:

| | |
|---------------------------------|----------|
| Lowell Aughenbaugh – President | Ortek |
| Bob Kolar – Project Manager | Ortek |
| Laurie Witter – Office Manager | Ortek |
| Jamie Paulin – RCRA Inspector | U.S. EPA |
| Brenda Whitney – RCRA Inspector | U.S. EPA |
| Brian Kennedy – RCRA Inspector | U.S. EPA |

Introduction

We arrived on site at 9:30 AM and introduced ourselves to Mr. Robert Kolar, Ortek’s Project Manager, outside the main office. We requested to meet with Mr. Lowell Aughenbaugh, Ortek’s President. Mr. Kolar directed us to the facility laboratory to wait while he notified Mr. Aughenbaugh. Several minutes later, Mr. Aughenbaugh and Ms. Laurie Witter, Ortek’s Office Manager, arrived in the laboratory. We provided our inspector credentials to Mr. Aughenbaugh.

I explained to Mr. Aughenbaugh the purpose of the site visit was to examine the progress the facility has made in conducting RCRA hazardous waste tank closure and constructing new secondary containment structures (actions both required by a previous 2015 Administrative Consent Order¹). I also informed Mr. Aughenbaugh that we were planning to conduct sampling activities around the site.

Mr. Aughenbaugh described the RCRA hazardous waste tank closure activities to date, including tank inspection and integrity testing that had recently been conducted by the Acuren Group consulting firm. He stated that other RCRA closure activities, including closure certification, would be conducted by Rapps Engineering and Applied Science, Inc., although company representatives had not yet been on site to inspect the tanks subject to closure.

Mr. Aughenbaugh stated that Ortek was facing an eviction notice from the Village of McCook and that he had to appear in court the following morning. He stated he had sent the relevant notice to EPA, but I stated we had not yet received that information. He said he would provide

¹ Docket Number RCRA-05-2015-0012, July 28, 2015

follow-up information after the court hearing. I requested to see the eviction notice, the results of the Acuren tank inspections, and contact information for the Rapps engineering firm.

I asked Mr. Aughenbaugh about current site operations. He said Ortek was still taking in some used oil and oily wastewater for processing, and that the wastewater treatment plant on site was operating on an as-needed basis. He stated most of the material coming on site was spent metalworking fluids.

I explained to Mr. Aughenbaugh that Ortek had the right to request split samples from any sampling activities conducted on site. Mr. Aughenbaugh declined to take any split samples. He stated that since he's worked at Ortek, the company has shipped approximately 250 "semi-trucks" worth of contaminated soil off site.

Initial Site Tour

Prior to sampling activities we requested to tour the site and inspect new secondary containment structures and the tanks subject to RCRA hazardous waste closure. Mr. Aughenbaugh led the tour to the northeast corner of the property where new concrete secondary containment had been installed around the wastewater treatment area. We entered the containment system and Mr. Aughenbaugh briefly explained the wastewater treatment process. Treated wastewater is discharged to the municipal sewer. Stormwater that accumulates in the containment area is also treated prior to discharge to the sewer. The newly-installed secondary containment around the wastewater treatment area consisted of concrete sidewalls several feet high, due to the nature of the site to flood during heavy raining events (See Photos 1 – 5 in Attachment A: Photographs of Site Tour).

The tour continued to the southwest corner of the property where Ortek had installed a secondary containment system around Tank 100, which has a capacity of 250,000 gallons. The containment system consisted of a new concrete pad that surrounds the tank and sidewalls several feet high (See Photos 6 – 8 in Attachment A). The containment extended north past Tank 100 in order to accommodate the large potential spill volume. On the north side of the containment system was the shell of tank on its side which Mr. Aughenbaugh claimed had never been in use. I asked Mr. Aughenbaugh about the contents of Tank 100. He said the tank was mostly full, and contained approximately 80,000 gallons of sludge. Mr. Aughenbaugh said stormwater accumulated in this containment system is pumped out and taken to the wastewater treatment system. The containment system is designed to accumulate stormwater in a blind sump along its centerline.

The tour continued east to the final newly-installed secondary containment system. This system provides containment for Tanks 1- 10, 101, and 120 – 146, and extends from the south-center portion of Ortek's property to the southeast corner. The newly-installed containment in this tank farm consisted of a completed concrete pad and sidewalls several feet high. The tanks subject to RCRA hazardous closure were in this tank farm: 101, 120, 122, 132, and 146. Mr. Aughenbaugh stated that Tank 101, with a capacity of 250,000 gallons, was still in use to process incoming oils. He said he was unsure how to undergo RCRA closure on this tank as it still contained approximately 25,000 gallons of sludge.

We walked around the tank farm and looked at Tanks 120, 122, 132, and 146, all of which were empty and marked as "Tank Closed 8-30-15." Mr. Aughenbaugh pointed out oil being processed inside the tank farm's triple basin. At the far east end of the containment system was an old granular activated carbon system. Mr. Aughenbaugh said the system is no longer in use, and that the east side of the containment is now used as a sump for stormwater. Attachment A contains all photographs (9 – 19) taken in this tank farm.

The tour continued south of this tank farm to the southern edge of Ortek's property line. The area consisted mostly of gravel and piles of soil that were likely the result of construction activities during the installation of the secondary containment system (See Photos 20 and 21 in Attachment A). Some of the soil was darkly stained.

South of Ortek's fence line was a recessed parcel of land under large power lines. The east end of this parcel appeared empty, and contained some puddles and gravel (See Photo 22 in Attachment A).

There was an old railroad track that runs east-west along Ortek's southern fence line. A grated sump was underneath most of the track length. The sump was filled with black sludge and liquid, and what appeared to be algae growth on the surface of this material. The material had a strong petroleum odor (See Photos 23 and 24 in Attachment A). A portable dump cart with oily residues was observed on the tracks (See Photo 25 in Attachment A).

At the south center of the property and adjacent to the railroad sump were two 20-cubic yard roll-off boxes. Both boxes were covered with plywood. Mr. Aughenbaugh removed the plywood on both boxes. Both boxes were nearly full of oily soil and sludge and liquid with an oily sheen. The material in both boxes had a strong petroleum odor (See Photos 26 – 28 in Attachment A). Black liquid was dripping from the corners of both boxes onto the ground. Mr. Aughenbaugh claimed this material was excavated from the nearby tank farm during the secondary containment construction. He said this material would be shipped to a non-hazardous landfill for disposal.

The tour continued to the southwest corner of the property where two railroad tracks that run into Ortek's site merge (the east-west track seen before, and a second north-south track). This merged track continues southwest off Ortek's property to join another larger commercial track (the use of which is seen in Photo 22). The merger of Ortek's track with the commercial track creates a small parcel of land which tapers to a point in its southwest corner. This parcel is also underneath the large power lines seen in Photo 22. In this parcel of land, and just south of the junction of Ortek's two tracks, there was a significant amount of what appeared to be freshly placed soil, debris, and dark-stained material. The surface of this area had prominent splotches of black, brown, and gray material (See Photos 29 – 31 in Attachment A). Fine gravel was covering a portion of the area closest to the railroad tracks. There appeared to be vehicle tracks in the area.

The site tour broke for an hour lunch at noon. We returned to the site at approximately 1:00 PM to conduct sampling activities.

Sampling Activities

All sampling activities were conducted at or near the southern portion of Ortek's property. All physical sample collection activities were conducted by Jamie Paulin. Brenda Whitney took photographs and notes during the sampling activities. I assisted Ms. Paulin in collecting the samples. Samples were taken from 10 unique locations. Attachment B contains a table summarizing the details of each sample collected. The information in the table includes:

- Sample location (1 – 10)
- Sample container identification
- Time of sampling
- Sample volume collected
- Sample container details
- Sample matrix
- Approximate GPS coordinates
- Sample location description and observations
- Associated photographs

All samples were collected using disposable plastic hand scoops. All soil samples taken were well-mixed on a sheet of aluminum foil and then collected in glass jars in alternating scoops to facilitate split sample collection. Split samples were collected for Commonwealth Edison ("ComEd"), the owner of certain property parcels that border or intersect property parcels owned by Ortek or its affiliates. Ortek declined split samples.

All plastic scoops, aluminum foil, and gloves were disposed of and replaced after sample collection at each sample location, and for one duplicate sample. It was initially planned to utilize a GPS camera to record the location of each sample collection. However, an issue with the camera led to no coordinates being recorded. GPS coordinates of selected samples were approximated after the inspection.

Attachment C contains all photographs taken during sampling activities (Photos 32 – 70), and as referenced by sample location in Attachment B. Attachment D contains a map of each sample location, excluding the samples taken from the roll-off boxes observed on site (Sample Locations 4 and 5).

Sampling activities ended at approximately 4:30 PM. We began tagging and bagging each sample and completing the associated chain of custody forms outside near our vehicle. Heavy rain began around 6:30 PM and our materials were getting wet. We decided to finish logging and bagging each sample off-site at a nearby gas station. Before leaving, we spoke with Mr. Aughenbaugh. We told him we were finished collecting samples and did not plan to return the following day. Mr. Aughenbaugh asked me what would become of the RCRA hazardous waste tank closure obligations should Ortek be forced to vacate the property. I told him I could not answer that question with any certainty at that time.

Sample bagging and logging was completed at a gas station near Ortek's site. Ice was purchased and placed in two coolers: one for EPA samples and one for ComEd split samples. Both coolers

were sealed with tape and taken to Ms. Paulin's residence for storage overnight. All samples were submitted to the Chicago Regional Laboratory the morning of March 31.

Attachment E contains the sample analytical results.

Attachments

- A. Site Tour Photographs
- B. Sample Summary Table
- C. Sampling Photographs
- D. Map of Sample Locations
- E. Sample Analytical Results

ATTACHMENT A: Site Tour Photographs

Photographs in this attachment were taken by Brian Kennedy using a Canon Power Shot SX230 HS digital camera, serial number 312034000185.

RCRA Photo Log

| Photo | Description | Time (CST) |
|-------|---|------------|
| 1 | New containment walls in the wastewater treatment area. | 10:35 AM |
| 2 | New containment walls in the wastewater treatment area. | 10:37 AM |
| 3 | An ISCO inside the wastewater treatment area. | 10:39 AM |
| 4 | New containment walls in the wastewater treatment area. | 10:40 AM |
| 5 | New containment walls in the wastewater treatment area. | 10:40 AM |
| 6 | The new containment system around Tank 100. | 10:49 AM |
| 7 | The new containment system around Tank 100. | 10:49 AM |
| 8 | A blind sump inside Tank 100's containment system. | 10:50 AM |
| 9 | Tank 144 in the new southern tank farm containment system. | 11:02 AM |
| 10 | An empty Tank 146, subject to RCRA closure. | 11:02 AM |
| 11 | Tank 120, marked as empty, subject to RCRA closure. | 11:03 AM |
| 12 | Tank 121 in the new southern tank farm containment system. | 11:04 AM |
| 13 | An empty Tank 132, subject to RCRA closure. | 11:05 AM |
| 14 | Tank 126 in the new southern tank farm containment system. | 11:05 AM |
| 15 | Tank 130 in the new southern tank farm containment system. | 11:07 AM |
| 16 | An empty Tank 122, subject to RCRA closure. | 11:08 AM |
| 17 | Tank 101, still in use, subject to RCRA closure. | 11:10 AM |
| 18 | The triple basin in the southern tank farm. | 11:14 AM |
| 19 | Eastern edge of the southern tank farm's new containment system. | 11:21 AM |
| 20 | The area south of the southern tank farm, facing west. | 11:31 AM |
| 21 | The area south of the southern tank farm, facing east. | 11:41 AM |
| 22 | Recessed area south of fenceline, under power lines, facing west. | 11:29 AM |
| 23 | Black sludge in the southern railroad track sump. | 11:36 AM |
| 24 | Black sludge in the southern railroad track sump. | 11:36 AM |
| 25 | A portable dump cart with sludge on the southern railroad track. | 11:37 AM |
| 26 | The south roll-off box with plywood cover. | 11:41 AM |
| 27 | The north roll-off box with plywood cover. | 11:42 AM |
| 28 | The black material inside the south roll-off box. | 11:42 AM |
| 29 | Southwest corner of property, facing east (opposite Photo 22). | 11:50 AM |
| 30 | Southwest corner of property, facing west (railroad junction). | 11:51 AM |
| 31 | Southwest corner of property, facing west (railroad junction). | 11:51 AM |

Photo 1:



Photo 2:



Photo 3:



Photo 4:

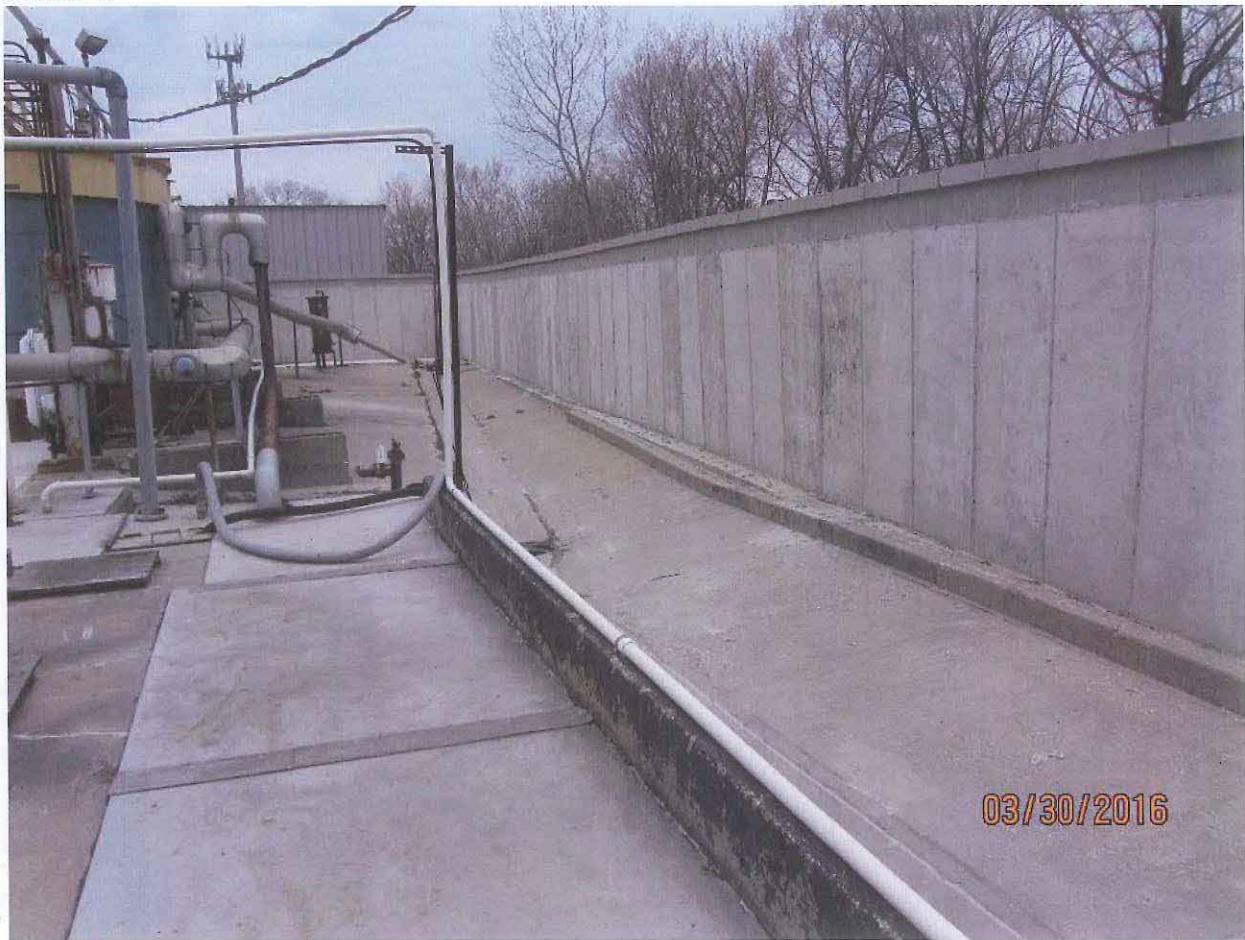


Photo 5:



Photo 6:



Photo 7:



Photo 8:



Photo 9:



Photo 10:

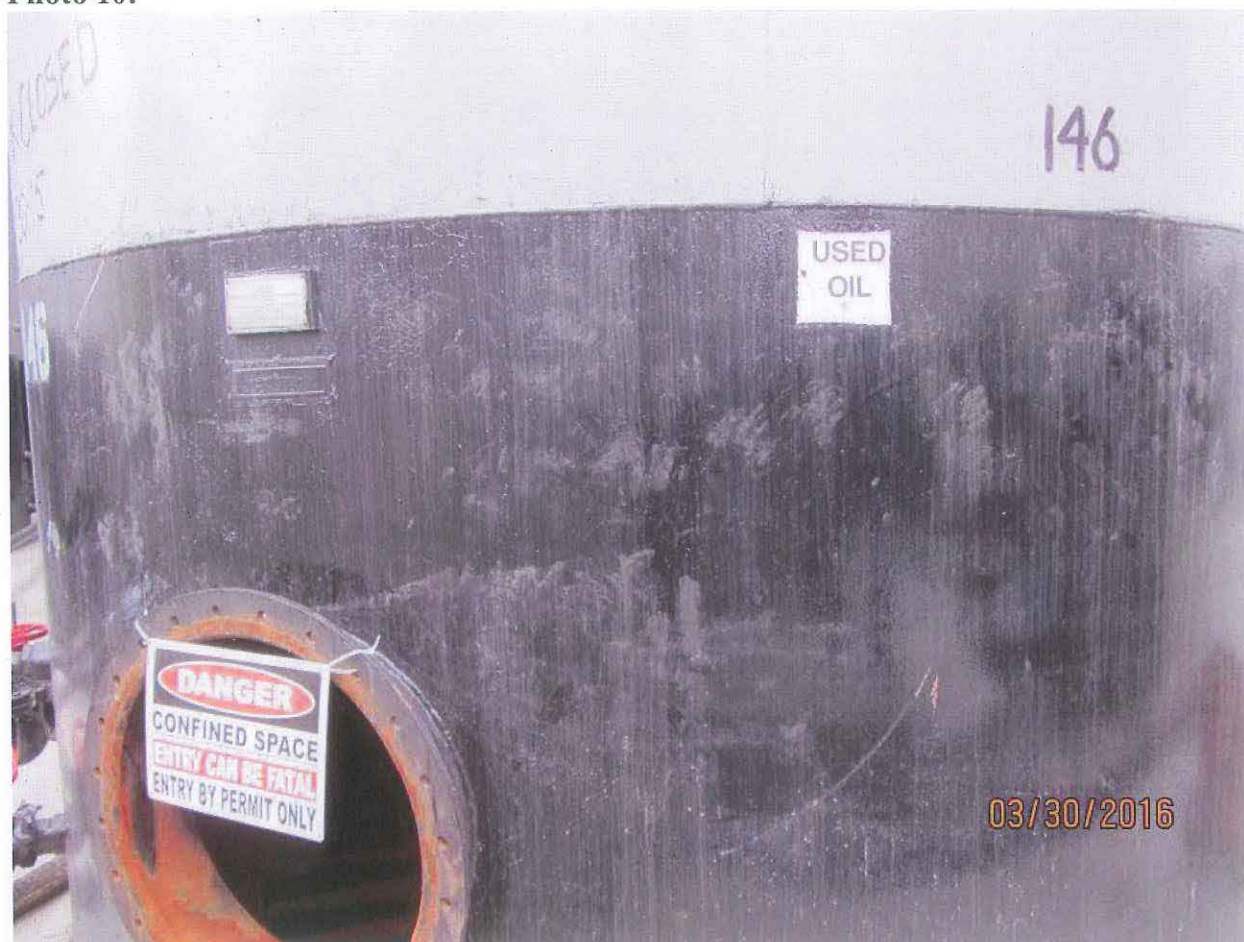


Photo 11:

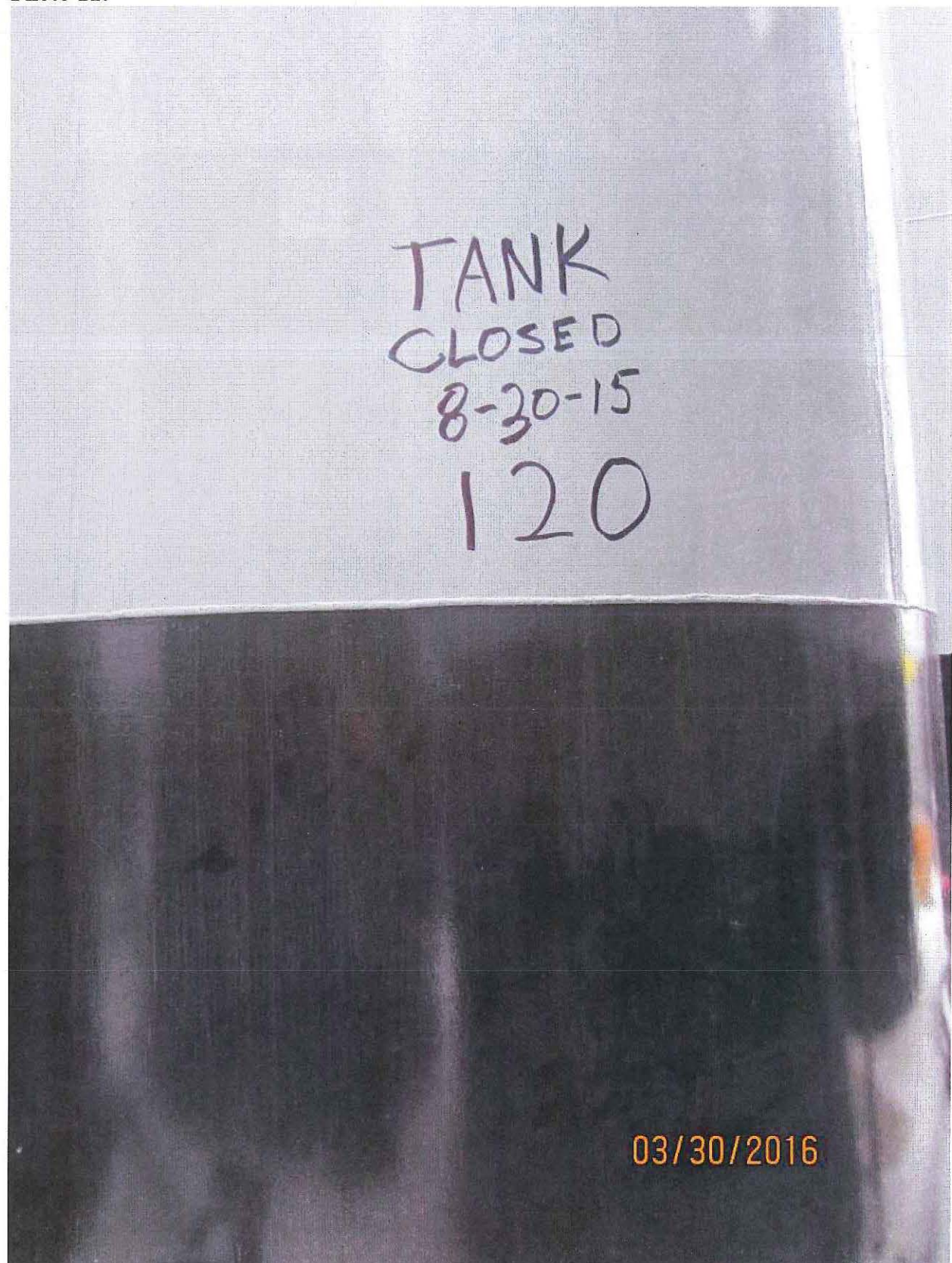


Photo 12:

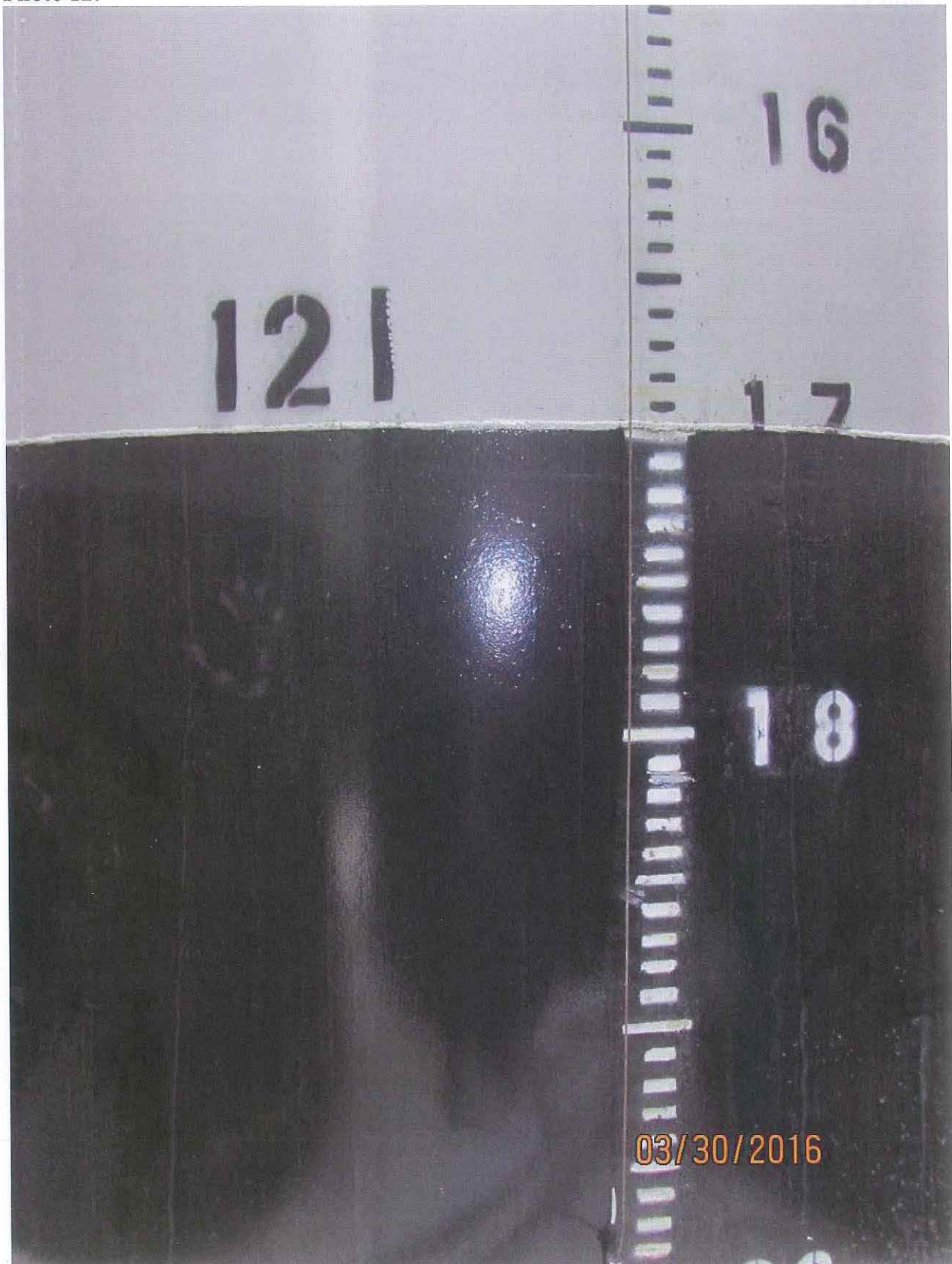


Photo 13:

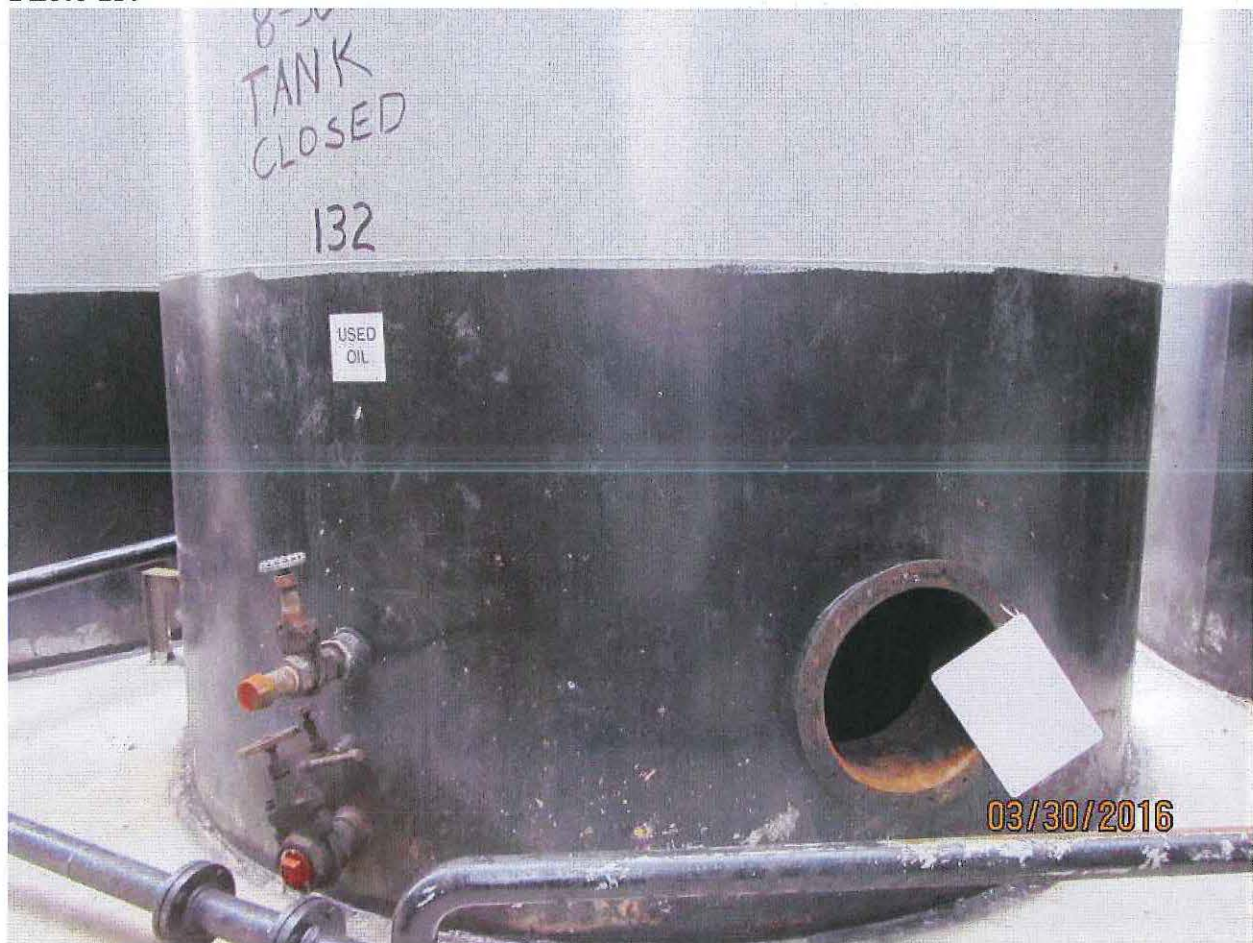


Photo 14:



Photo 15:

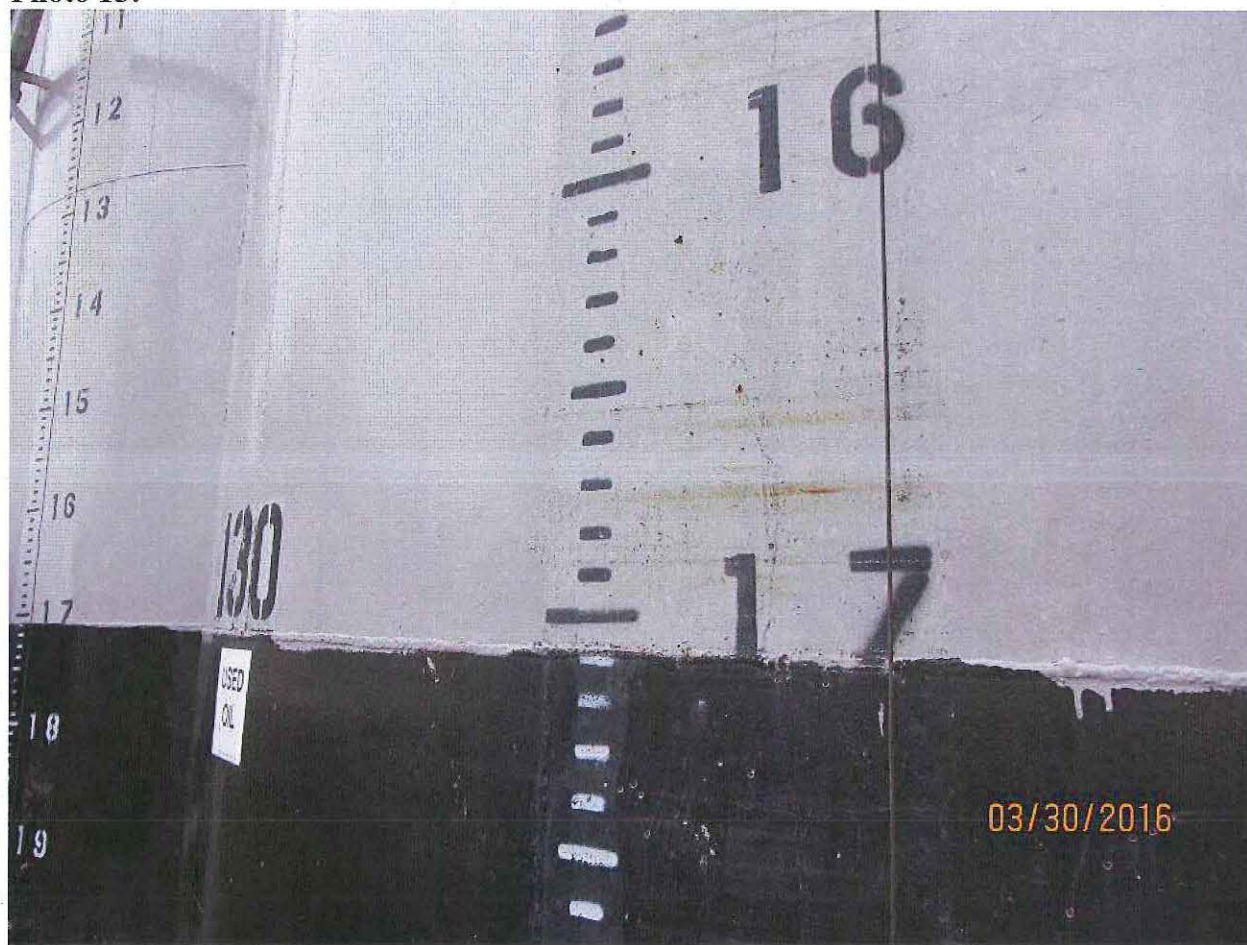


Photo 16:

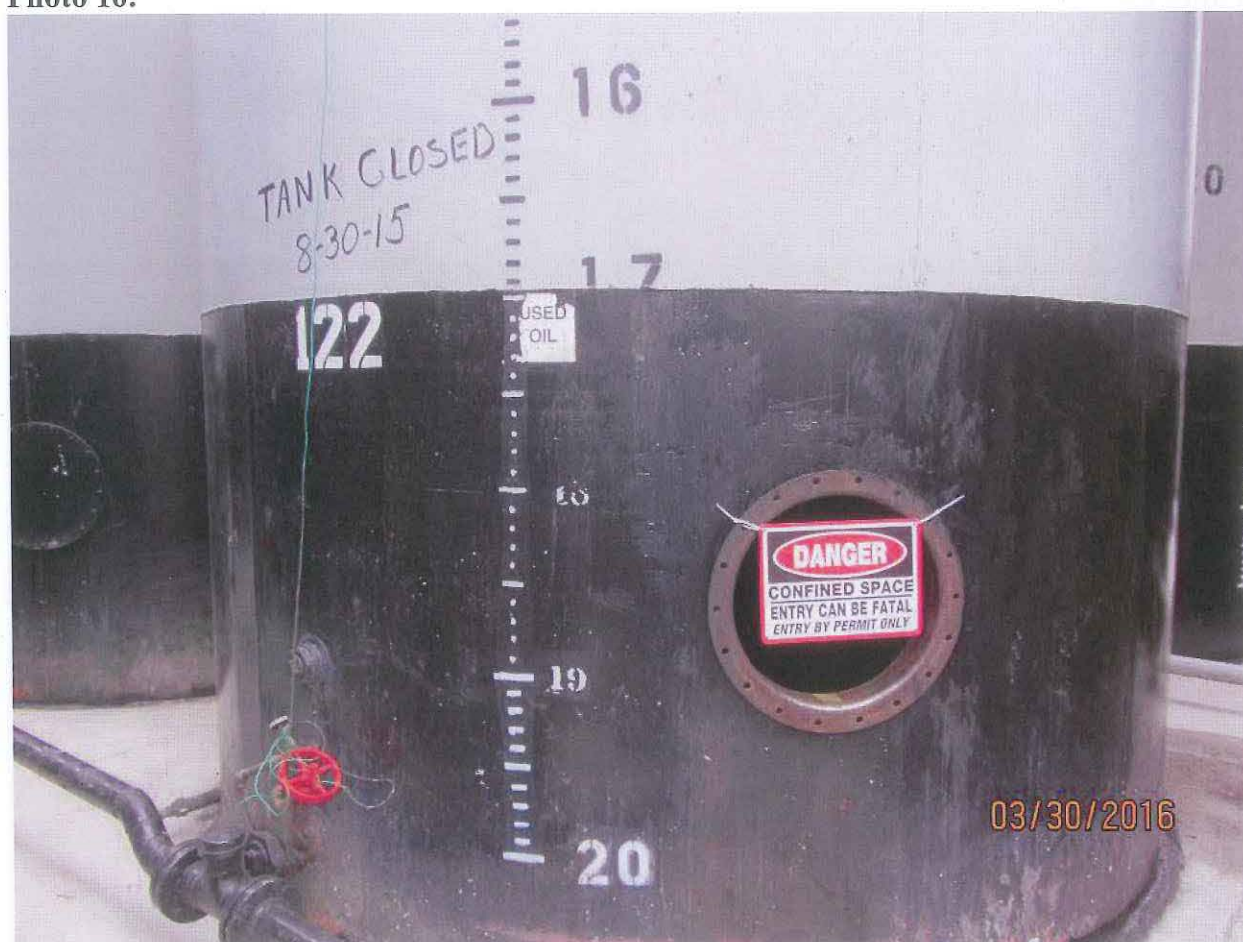


Photo 17:



Photo 18:

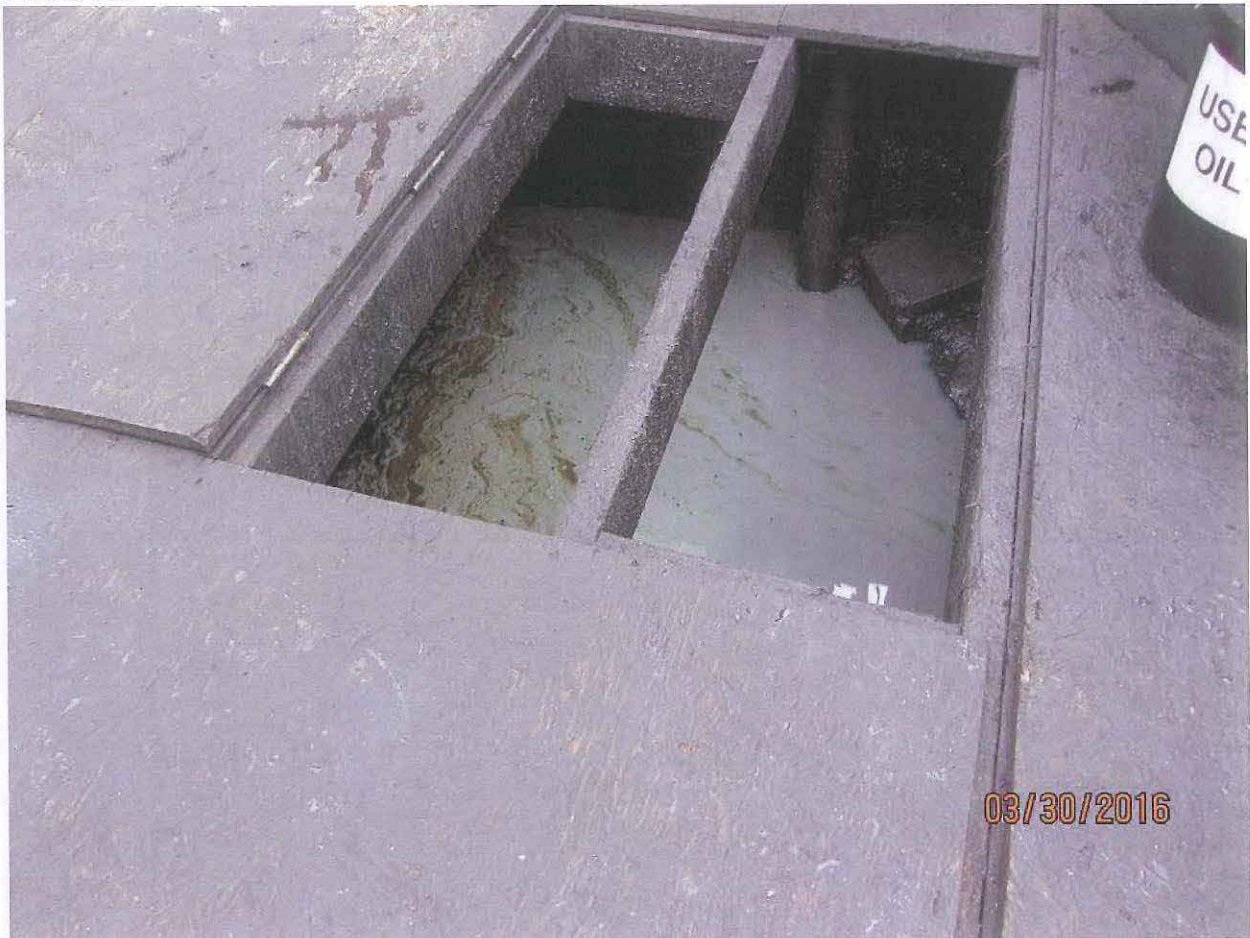


Photo 19:



Photo 20:

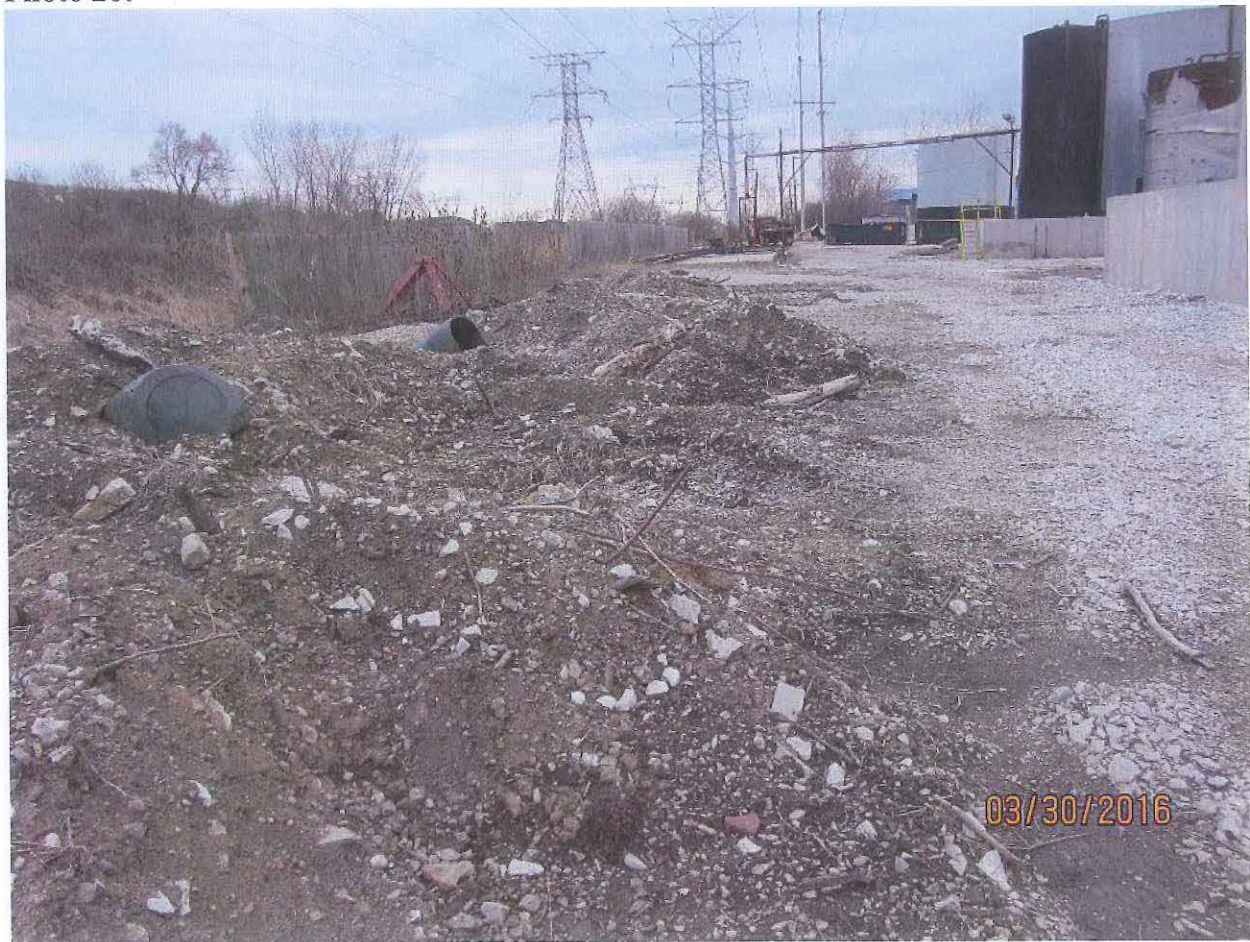


Photo 21:



Photo 22:



Photo 23:



Photo 24:



Photo 25:



Photo 26:



Photo 27:



Photo 28:



Photo 29:



Photo 30:



Photo 31:



ATTACHMENT B: Sample Summary Table

| Sample Location | Time Sampled (CST) | Sample Container Identification Code | Split Sample? | Sample Volume (oz) | Scoops per Container | Container Detail | Approx. GPS Coordinates | | Sample Matrix | Sample Location Description and Observations | Related Photographs |
|-----------------|--------------------|--------------------------------------|---------------|--------------------|----------------------|---|-------------------------|-----------|---------------|--|---------------------|
| | | | | | | | Latitude | Longitude | | | |
| 1 | 1:40 PM | 3301601 | N | 32 | 10 | Clear, wide-mouth glass jars - 32 oz. and 8 oz. sizes | 41.80465 | -87.81146 | Soil | Slightly darkened soil south of the southern tank farm (near Tanks 7-10). Outside of the tank farm containment area, underneath a small set of power lines. There was light rain during sampling. | Photos 32 - 35 |
| | | 3301601M | N | 8 | 3 | | | | | | |
| | | 3301601SCE | Y | 32 | 10 | | | | | | |
| | | 3301601SMCE | Y | 8 | 3 | | | | | | |
| 2 | 2:02 PM | 3301602 | N | 32 | 9 | Clear, wide-mouth glass jars - 32 oz. and 8 oz. sizes | 41.80463 | -87.81163 | Soil | Dark stained soil in a small pile of clay, gravel and soil. South of southern tank farm, outside the containment area (near Tank 125). Just north of the east end of Ortek's east-west rail-line. Sample had an aromatic odor. | Photos 36 - 39 |
| | | 3301602M | N | 8 | 3 | | | | | | |
| | | 3301602SCE | Y | 32 | 9 | | | | | | |
| | | 3301602SMCE | Y | 8 | 3 | | | | | | |
| 3 | 2:20 PM | 3301603 | N | 32 | 7 | Clear, wide-mouth glass jars - 32 oz. and 8 oz. sizes | 41.80440 | -87.81222 | Sludge | Black solids, sludge, and muddy material inside a rail line sump underneath the tracks of Ortek's east-west rail-line. An opening in a steel grate cover allowed sampling from the sump. An oily sheen appeared in the liquid in the sump during sampling. No split was taken. Material had a strong petroleum odor. | Photos 40 - 42 |
| | | 3301603M | N | 8 | 4 | | | | | | |
| 4 | 2:30 PM | 3301604 | N | 32 | 6 | Clear, wide-mouth glass jars - 32 oz. and 8 oz. sizes | NA | NA | Soil / Sludge | One of two roll-off boxes on the southern portion of the property, near the rail sump location of sample location 3. The southern-most roll-off-box. Box marked "2090." Box nearly full of dark black soil and sludge. Strong petroleum odor. Dark liquid accumulated at surface. Southeast corner of box leaking dark liquid onto soil. Mr. Aughenbaugh claims material excavated from site during secondary containment construction. Liquid material appears to be emulsified oil -black and light and dark brown color. No splits taken. | Photos 43 - 50 |
| | | 3301604M | | 8 | 4 | | | | | | |
| | | 3301604L | | 16 | NA | Tapered-mouth, amber glass jar | | | Liquid | | |
| | | 3301604ML | | 8 | NA | Clear, wide-mouth glass jar | | | | | |

| Sample Location | Time Sampled (CST) | Sample Container Identification Code | Split Sample? | Sample Volume (oz) | Scoops per Container | Container Detail | Approx. GPS Coordinates | | Sample Matrix | Sample Location Description and Observations | Related Photographs |
|-----------------|--------------------|--------------------------------------|---------------|--------------------|----------------------|---|-------------------------|-----------|---------------|---|--|
| | | | | | | | Latitude | Longitude | | | |
| 5 | 2:49 PM | 3301605 | N | 32 | 6 | Clear, wide-mouth glass jars - 32 oz. and 8 oz. sizes | NA | NA | Soil / Sludge | The second of two roll-off boxes on the southern portion of the property, near the rail sump location of sample location 3. The northern-most roll-off box. Box marked "20103." Box contained material with same characteristics of that in the southern roll-off box (sample location 4). Liquid in this box had a green and brown tint, and was semi-transparent. No splits taken. | Photos 51 - 54 |
| | | 3301605M | | 8 | 3.5 | | | | | | |
| | | 3301605L | | 16 | NA | Tapered-mouth, amber glass jar | | | | | |
| | | 3301605ML | | 8 | NA | Clear, wide-mouth glass jar | | | Liquid | | |
| 6 | 3:21 PM | 3301606 | N | 32 | 9 | Clear, wide-mouth glass jars - 32 oz. and 8 oz. sizes | 41.80413 | -87.81271 | Soil | Dark stained soil in the southwestern corner of the property, south of the fenceline and near the junction of Ortek's railroad tracks and a larger commercial rail track. Underneath larger set of power lines. Area appears to have fill material, with several notable dark spots. Mr. Aughenbaugh said he has placed some limestone cover in this area. Sample was dark brown and black in color - sandy and clay composition with petroleum odor. Sample was taken on eastern side of fill area, where material appears to transition into a grassy area. | Photos 55 - 56 are overview of area. Photos 57 - 58 associated with this sample. |
| | | 3301606M | N | 8 | 3 | | | | | | |
| | | 3301606SCE | Y | 32 | 9 | | | | | | |
| | | 3301606SMCE | Y | 8 | 3 | | | | | | |
| 7 | 3:36 PM | 3301607 | N | 32 | 9 | Clear, wide-mouth glass jars - 32 oz. and 8 oz. sizes | 41.80410 | -87.81274 | Soil | Dark stained soil in the southwestern corner of the property, south of the fenceline and near the junction of Ortek's railroad tracks and a larger commercial rail track. Underneath larger set of power lines. Same general area as location 6. Sample was mostly dark brown in color - sandy composition with petroleum odor. Sample was taken further west than location 6. | Photos 59 - 61 |
| | | 3301607M | N | 8 | 3 | | | | | | |
| | | 3301607SCE | Y | 32 | 9 | | | | | | |
| | | 3301607SMCE | Y | 8 | 3 | | | | | | |
| 8 | 3:47 PM | 3301608 | N | 32 | 8 | Clear, wide-mouth glass jars - 32 oz. and 8 oz. sizes | 41.80407 | -87.81281 | Soil | Dark stained soil in the southwestern corner of the property, south of the fenceline and near the junction of Ortek's railroad tracks and a larger commercial rail track. Underneath larger set of power lines. Same general area as location 7, only further west. Sample was very dark brown/black stained soil with a sweet aromatic odor. | Photos 62 - 64 |
| | | 3301608M | N | 8 | 3 | | | | | | |
| | | 3301608SCE | Y | 32 | 8 | | | | | | |
| | | 3301608SMCE | Y | 8 | 3 | | | | | | |

| Sample Location | Time Sampled (CST) | Sample Container Identification Code | Split Sample? | Sample Volume (oz) | Scoops per Container | Container Detail | Approx. GPS Coordinates | | Sample Matrix | Sample Location Description and Observations | Related Photographs |
|-----------------|--------------------|--------------------------------------|---------------|--------------------|----------------------|---|-------------------------|-----------|---------------|--|---------------------|
| | | | | | | | Latitude | Longitude | | | |
| 9 | 4:04 PM | 3301609 | N | 32 | 8 | Clear, wide-mouth glass jars - 32 oz. and 8 oz. sizes | 41.80405 | -87.81291 | Soil | Dark stained soil in the southwestern corner of the property, south of the fenceline and near the junction of Ortek's railroad tracks and a larger commercial rail track. Underneath larger set of power lines. Same general area as location 8, only further west. Sample had a light brown, sandy clay appearance with black staining and an aromatic odor. | Photos 65 - 67 |
| | | 3301609M | N | 8 | 3 | | | | | | |
| | | 3301609SCE | Y | 32 | 8 | | | | | | |
| | | 3301609SMCE | Y | 8 | 3 | | | | | | |
| 10 | 4:14 PM | 3301610 | N | 32 | 8 | Clear, wide-mouth glass jars - 32 oz. and 8 oz. sizes | 41.80401 | -87.81295 | Soil | Dark stained soil in the southwestern corner of the property, south of the fenceline and near the junction of Ortek's railroad tracks and a larger commercial rail track. Underneath larger set of power lines. Same general area as location 9, only further west. Sample taken from packed dark brown soil with clay consistency. Similar coloration to 3301609, with granular consistency. Surrounded by fresh limestone. | Photos 68 - 69 |
| | | 3301610M | N | 8 | 3 | | | | | | |
| | | 3301610SCE | Y | 32 | 8 | | | | | | |
| | | 3301610SMCE | Y | 8 | 3 | | | | | | |
| | 4:29 PM | 3301610DUP | N | 32 | 14 | Tapered-mouth, amber glass jar | | | | Duplicate sample of 3301610 and 3301610M for quality control purposes. Material has same description as above. | Photos 70 - 71 |
| | | 3301610MDUP | N | 8 | 3 | Clear, wide-mouth glass jar | | | | | |

ATTACHMENT C: Sampling Photographs

Photographs in this attachment were taken by Brenda Whitney using a Canon Power Shot SX230 HS digital camera, serial number 312034000185.

RCRA Photo Log

| Photo | Description | Time (CST) |
|-------|--|------------|
| 32 | Sample Location #1: Area before sampling. | 1:42 PM |
| 33 | Sample Location #1: Area after sampling. | 1:56 PM |
| 34 | Sample Location #1: Looking southeast of sampling area. | 1:58 PM |
| 35 | Sample Location #1: north of sampling area. | 1:59 PM |
| 36 | Sample Location #2: Area before sampling. | 2:02 PM |
| 37 | Sample Location #2: Area after sampling. | 2:12 PM |
| 38 | Sample Location #2: Looking south at sampling area. | 2:14 PM |
| 39 | Sample Location #2: Looking north at sampling area. | 2:14 PM |
| 40 | Sample Location #3: View of sump before sampling. | 2:20 PM |
| 41 | Sample Location #3: View of sump after sampling. | 2:27 PM |
| 42 | Sample Location #3: Looking north from sump | 2:29 PM |
| 43 | Sample Location #4: View of south roll-off box, looking northwest. | 2:29 PM |
| 44 | Sample Location #4: View of south roll-off box, looking northwest. North roll-off box visible. | 2:29 PM |
| 45 | Sample Location #4: View inside south roll-off box before sampling. | 2:30 PM |
| 46 | Sample Location #4: Another view inside south roll-off box before sampling. | 2:30 PM |
| 47 | Sample Location #4: Marker "2090" on south roll-off box. | 2:30 PM |
| 48 | Sample Location #4: Leaking southeast corner of south roll-off box. | 2:34 PM |
| 49 | Sample Location #4: Containers after sampling south roll-off box. | 2:46 PM |
| 50 | Sample Location #4: Containers after sampling south roll-off box. | 2:46 PM |
| 51 | Sample Location #5: Marker "20103" on north roll-off box. | 2:49 PM |
| 52 | Sample Location #5: View inside north roll-off box before sampling. | 2:49 PM |
| 53 | Sample Location #5: View inside north roll-off box before sampling. | 2:49 PM |
| 54 | Sample Location #5: Containers after sampling north roll-off box. | 2:59 PM |
| 55 | View of southwest corner of property near railroad junction, looking south. Ortek tracks in foreground, commercial tracks in background. | 3:10 PM |
| 56 | Similar view as Photo 55, turned slightly to the west. | 3:10 PM |
| 57 | Sample Location #6: Area after sampling. | 3:26 PM |
| 58 | Sample Location #6: Area after sampling, looking east. | 3:27 PM |
| 59 | Sample Location #7: Area before sampling. | 3:34 PM |
| 60 | Sample Location #7: Area after sampling. | 3:43 PM |
| 61 | Sample Location #7: Area after sampling, looking northeast. | 3:43 PM |
| 62 | Sample Location #8: Area before sampling. | 3:46 PM |
| 63 | Sample Location #8: Area after sampling. | 3:54 PM |
| 64 | Sample Location #8: Area after sampling, looking north. | 3:55 PM |

| Photo | Description | Time (CST) |
|-------|---|------------|
| 65 | Sample Location #9: Area before sampling. | 4:00 PM |
| 66 | Sample Location #9: Area after sampling. | 4:08 PM |
| 67 | Sample Location #9: Area after sampling, looking north. | 4:09 PM |
| 68 | Sample Location #10: Area before sampling. | 4:13 PM |
| 69 | Sample Location #10: Area after sampling. | 4:23 PM |
| 70 | Sample Location #10: Area after duplicate samples. | 4:32 PM |
| 71 | Sample Location #10: Area after duplicate samples, looking north. | 4:32 PM |

Photo 32:



Photo 33:



Photo 34:



Photo 35:



Photo 36:



Photo 37:



Photo 38:



Photo 39:



Photo 40:



Photo 41:



Photo 42:



Photo 43:



Photo 44:



Photo 45:

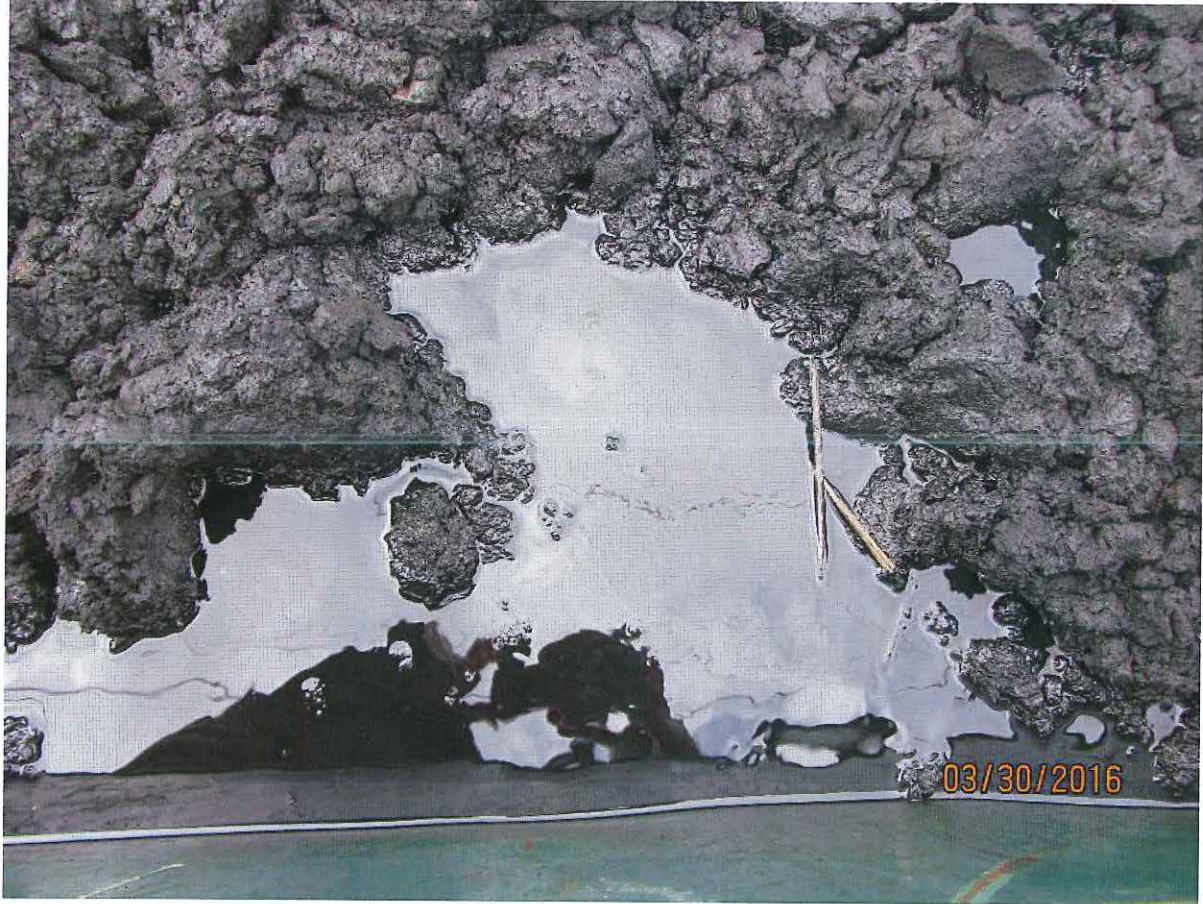


Photo 46:



Photo 47:



Photo 48:



Photo 49:



Photo 50:

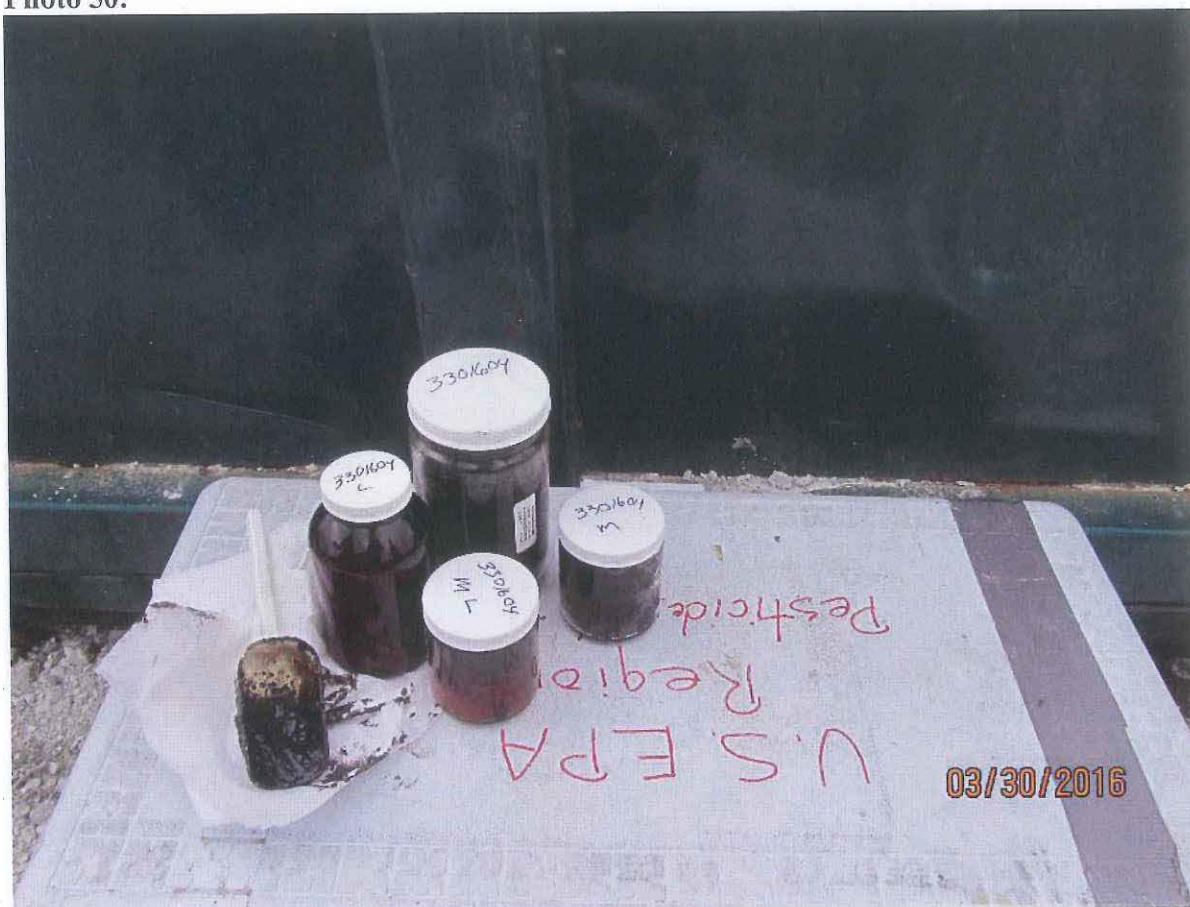


Photo 51:

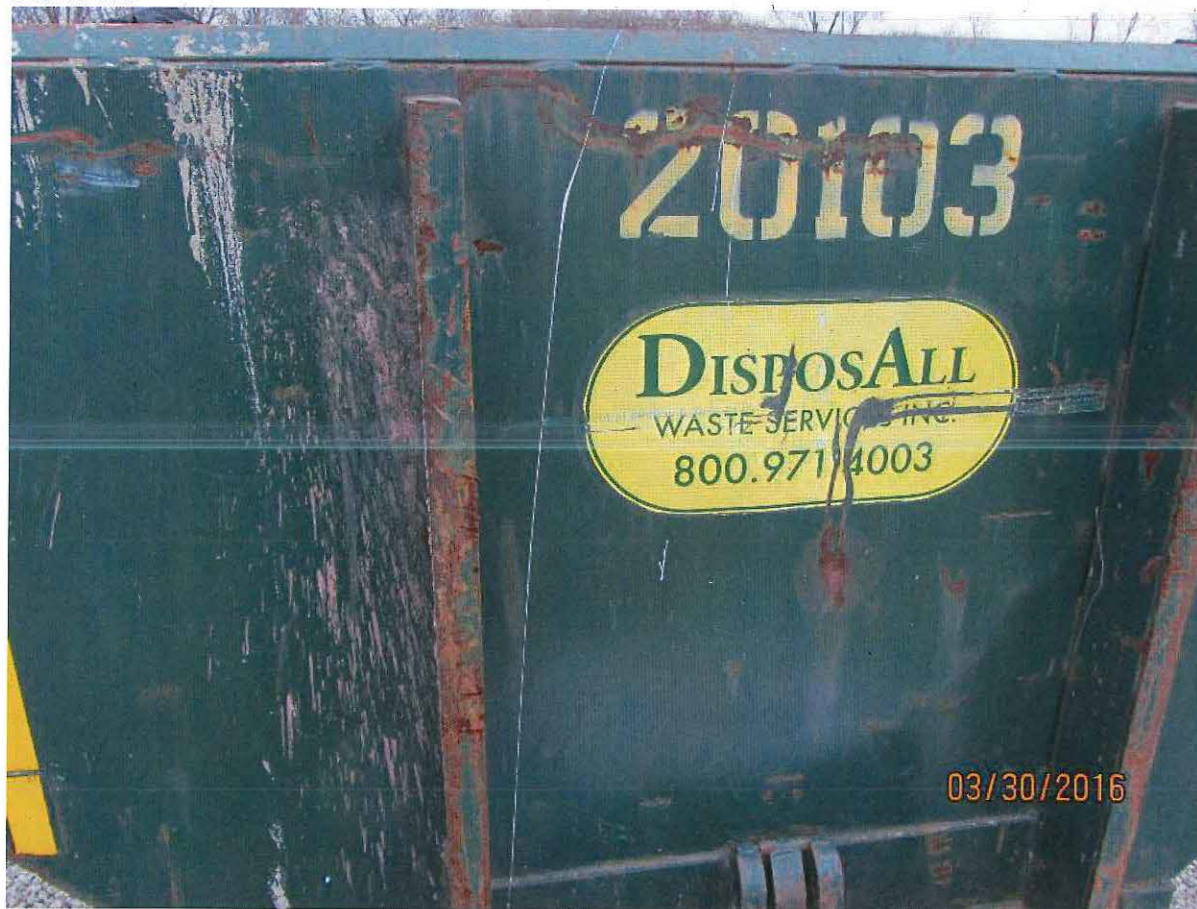


Photo 52:



Photo 53:



Photo 54:

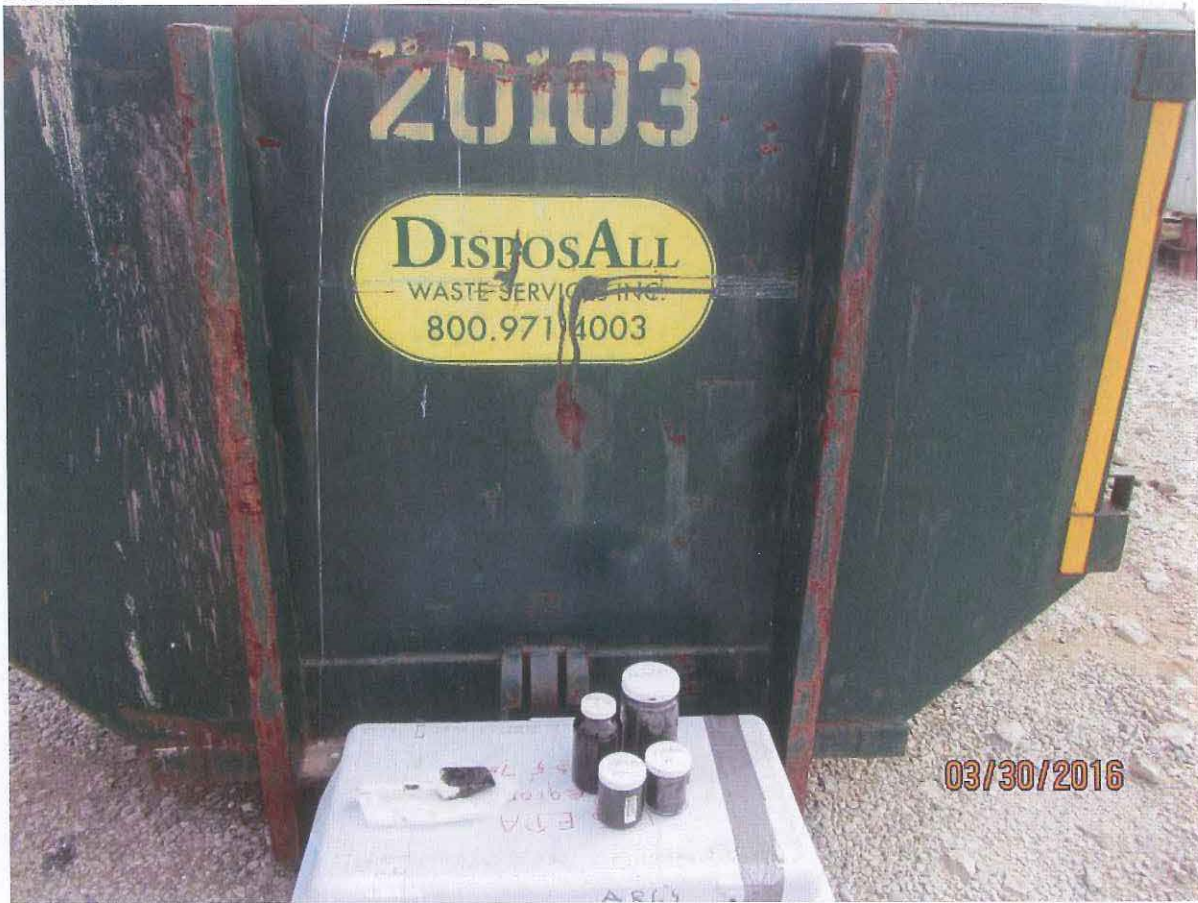


Photo 55:



Photo 56:



Photo 57:



Photo 58:



Photo 59:



Photo 60:



Photo 61:



Photo 62:



Photo 63:



Photo 64:



Photo 65:



Photo 66:



Photo 67:



Photo 68:



Photo 69:



Photo 70:



Photo 71:



ATTACHMENT D: Map of Sample Locations

Figure 1: An aerial view of Ortek's facility. The red outline denotes the zoomed-in view in Figure 2, below.

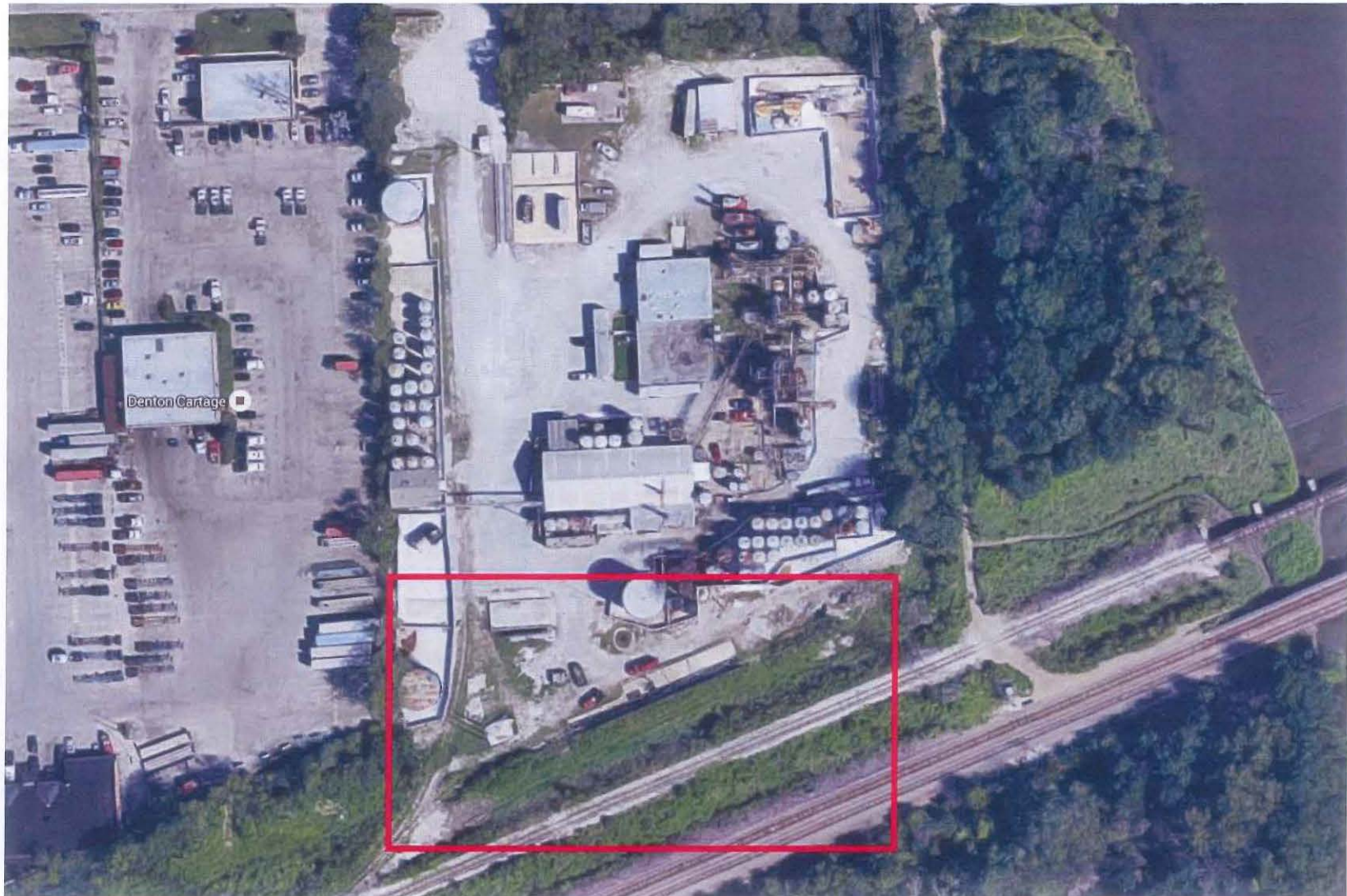
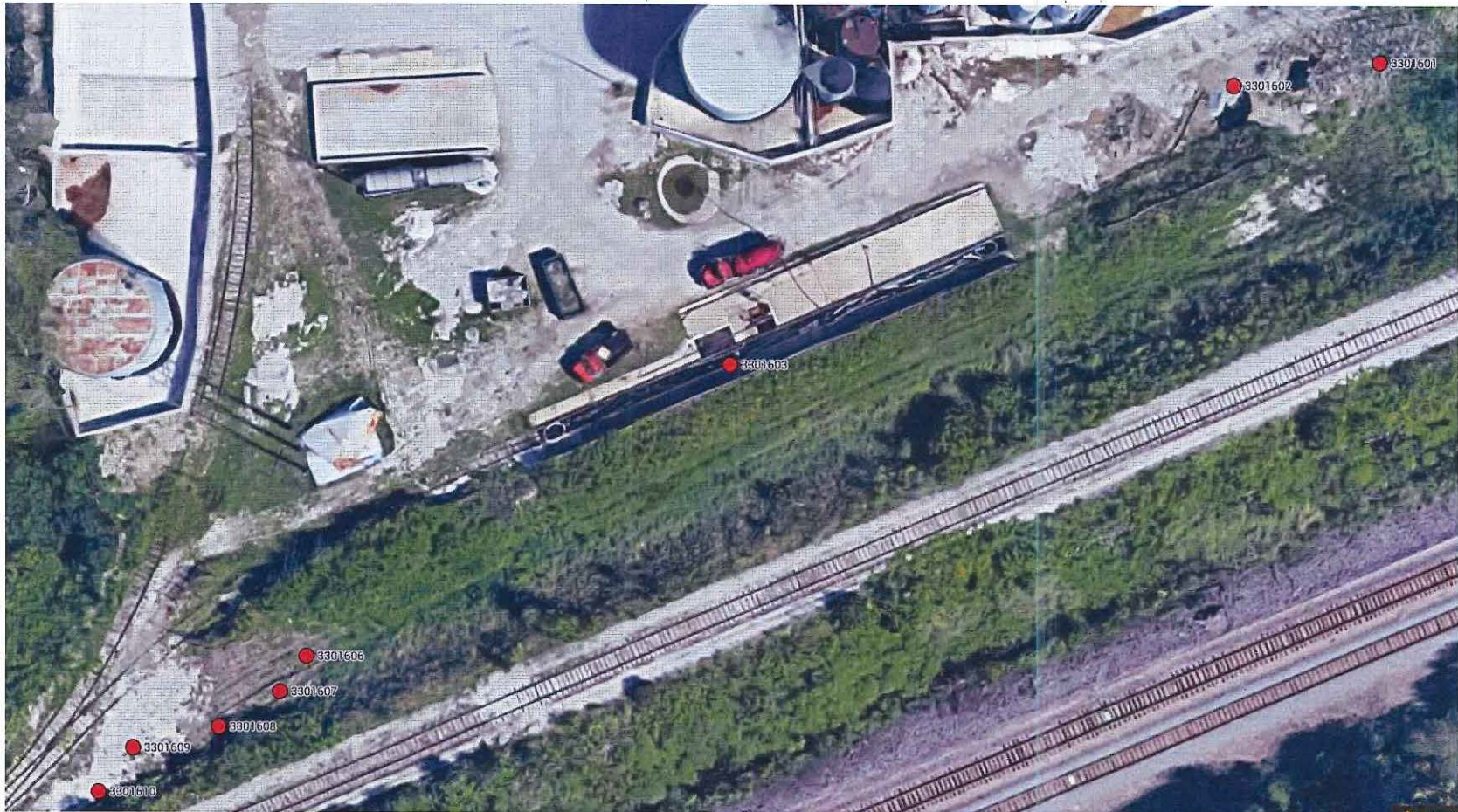


Figure 2: Sample location map. Locations are marked with red dots.



ATTACHMENT E: Sample Analytical Results



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5 CHICAGO REGIONAL LABORATORY
536 SOUTH CLARK STREET
CHICAGO, ILLINOIS 60605



Date: 5/9/2016
Subject: Review of Region 5 Data for Ortek
To: RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604
From: Danielle Kleinmaier, Chemist
US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with EPA's *Guidance on Environmental Data Verification and Data Validation* (Document EPA QA/G-8), CRL verified and validated the data but does not perform data quality assessment based on project plans.

This report was reviewed and the information provided herein accurately represents the analysis performed.

X _____

Please contact the analyst with any technical report issues, Robert Thompson at (312)-353-9078 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.

Attached are Results for: Ortek

Data Management Coordinator and Date Transmitted

Analyses included in this report:

SVOA water by micro-extraction



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536 South Clark Street, Chicago, IL 60605
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RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-09-16 17:21

ANALYSIS CASE NARRATIVE

General Information

Eleven soil samples were received for the toxicity characteristic leaching procedure (TCLP) of semi-volatile organic compounds (SVOCs) on March 31st, 2016. All holding times were met. The designated analyst for these samples, Danielle Kleinmaier, can be reached at (312) 353-9771.

Sample Analysis and Results

Sample preparation and analysis occurred via the Chicago Regional Laboratory standard operating procedures (CRL SOPs) GEN019 Ver. 4 (the CRL implementation of EPA Method 1311) and MS026 Ver. 1 (based on EPA Method 8270D). The TCLP leachate was extracted for only the TCLP SVOCs listed in Table 4 of the SOP by equilibrium liquid-liquid micro-extraction.

The data quality objectives for this project were to report results at or below the TCLP regulatory levels as specified in the document "Ortek QAPP SAP HASP 3-10-16.pdf". The data reported herein met the data quality objectives.

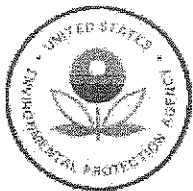
2-Methylphenol and 3+4-methylphenol were measured above the reporting limits, but below the TCLP regulatory limits, in field samples 3301604 (LIMS ID 1603050-04) and 3301605 (LIMS ID 1603050-05).

Quality Control (QC)

Refer to the report for qualifiers added by analyte. The key at the end of the report contains descriptions of each data qualifier added and the expected impact on the data. All other QC audits not mentioned below were within CRL SOP limits or did not result in qualification of the data.

Reporting Limit (RL) Verification

Most of the target compounds in RL check B16D033-MRL1 (0.025 mg/L target compound concentration) were recovered below the SOP acceptance limits. The RL for all of the affected target compounds was raised to 0.125 mg/L (B16D033-MRL2 target compound concentration) with the exception of 2,4-dinitrotoluene, which was recovered acceptably in B16D033-MRL1, and pentachlorophenol, which had a calculated recovery in B16D033-MRL2 below the SOP acceptance limits. The RL for pentachlorophenol was raised to 0.625 mg/L (B16D033-BS1/BSD1 target compound concentration).



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Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-09-16 17:21

ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|------------|---------------|--------|-----------------|-----------------|
| 3301601 | 1603050-01 | Soil | Mar-30-16 13:40 | Mar-31-16 10:15 |
| 3301602 | 1603050-02 | Soil | Mar-30-16 14:02 | Mar-31-16 10:15 |
| 3301603 | 1603050-03 | Soil | Mar-30-16 14:20 | Mar-31-16 10:15 |
| 3301604 | 1603050-04 | Soil | Mar-30-16 14:30 | Mar-31-16 10:15 |
| 3301605 | 1603050-05 | Soil | Mar-30-16 14:40 | Mar-31-16 10:15 |
| 3301606 | 1603050-06 | Soil | Mar-30-16 15:21 | Mar-31-16 10:15 |
| 3301607 | 1603050-07 | Soil | Mar-30-16 15:36 | Mar-31-16 10:15 |
| 3301608 | 1603050-08 | Soil | Mar-30-16 15:47 | Mar-31-16 10:15 |
| 3301609 | 1603050-09 | Soil | Mar-30-16 16:04 | Mar-31-16 10:15 |
| 3301610 | 1603050-10 | Soil | Mar-30-16 16:14 | Mar-31-16 10:15 |
| 3301610DUP | 1603050-11 | Soil | Mar-30-16 16:29 | Mar-31-16 10:15 |



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Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-09-16 17:21

Semivolatiles by GC/MS, EPA 8270D (modified)
US EPA Region 5 Chicago Regional Laboratory

3301601 (1603050-01) Soil Sampled: Mar-30-16 13:40 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|-----------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Pyridine | U | | | 0.125 | mg/L | 1 | B16D033 | Apr-13-16 | Apr-21-16 |
| 2-Methylphenol | U | | | 0.125 | " | " | " | " | " |
| 3+4-Methylphenol | U | | | 0.250 | " | " | " | " | " |
| Hexachloroethane | U | | | 0.125 | " | " | " | " | " |
| Nitrobenzene | U | | | 0.125 | " | " | " | " | " |
| Hexachlorobutadiene | U | | | 0.125 | " | " | " | " | " |
| 2,4,6-Trichlorophenol | U | | | 0.125 | " | " | " | " | " |
| 2,4,5-Trichlorophenol | U | | | 0.125 | " | " | " | " | " |
| 2,4-Dinitrotoluene | U | | | 0.0250 | " | " | " | " | " |
| Hexachlorobenzene | U | | | 0.125 | " | " | " | " | " |
| Pentachlorophenol | U | | | 0.625 | " | " | " | " | " |

| Surogate | Result | %REC | %REC Limits | Batch | Prepared | Analyzed |
|---------------------------------|--------|-------|----------------|-------|----------|----------|
| Surrogate: Pyridine-d5 | 0.270 | 43.2% | 20.4-71.4 | " | " | " |
| Surrogate: 2-Fluorophenol | 0.253 | 40.5% | 28.7-72.9 | " | " | " |
| Surrogate: Phenol-d5 | 0.232 | 37.0% | 22.1-61.7 | " | " | " |
| Surrogate: Nitrobenzene-d5 | 0.332 | 53.0% | 42.1-90.1 | " | " | " |
| Surrogate: 2-Fluorobiphenyl | 0.282 | 45.1% | 40.3-92.5 | " | " | " |
| Surrogate: 2,4,6-Tribromophenol | 0.456 | 73.0% | 42.5-107 | " | " | " |
| Surrogate: Terphenyl-d14 | 0.511 | 81.8% | 58.6-111 | " | " | " |

3301602 (1603050-02) Soil Sampled: Mar-30-16 14:02 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|-----------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Pyridine | U | | | 0.125 | mg/L | 1 | B16D033 | Apr-13-16 | Apr-21-16 |
| 2-Methylphenol | U | | | 0.125 | " | " | " | " | " |
| 3+4-Methylphenol | U | | | 0.250 | " | " | " | " | " |
| Hexachloroethane | U | | | 0.125 | " | " | " | " | " |
| Nitrobenzene | U | | | 0.125 | " | " | " | " | " |
| Hexachlorobutadiene | U | | | 0.125 | " | " | " | " | " |
| 2,4,6-Trichlorophenol | U | | | 0.125 | " | " | " | " | " |
| 2,4,5-Trichlorophenol | U | | | 0.125 | " | " | " | " | " |
| 2,4-Dinitrotoluene | U | | | 0.0250 | " | " | " | " | " |
| Hexachlorobenzene | U | | | 0.125 | " | " | " | " | " |
| Pentachlorophenol | U | | | 0.625 | " | " | " | " | " |



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Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-09-16 17:21

Semivolatiles by GC/MS, EPA 8270D (modified)
US EPA Region 5 Chicago Regional Laboratory

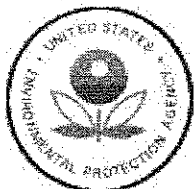
3301602 (1603050-02) Soil Sampled: Mar-30-16 14:02 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|---------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|---------|-----------|-----------|
| Surogate | Result | | | %REC | | %REC Limits | Batch | Prepared | Analyzed |
| Surrogate: Pyridine-d5 | 0.210 | | | 33.7% | | 20.4-71.4 | B16D033 | Apr-13-16 | Apr-21-16 |
| Surrogate: 2-Fluorophenol | 0.197 | | | 31.5% | | 28.7-72.9 | " | " | " |
| Surrogate: Phenol-d5 | 0.198 | | | 31.8% | | 22.1-61.7 | " | " | " |
| Surrogate: Nitrobenzene-d5 | 0.261 | | | 41.8% | | 42.1-90.1 | " | " | " |
| Surrogate: 2-Fluorobiphenyl | 0.270 | | | 43.1% | | 40.3-92.5 | " | " | " |
| Surrogate: 2,4,6-Tribromophenol | 0.544 | | | 87.0% | | 42.5-107 | " | " | " |
| Surrogate: Terphenyl-d14 | 0.598 | | | 95.7% | | 58.6-111 | " | " | " |

3301603 (1603050-03) Soil Sampled: Mar-30-16 14:20 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|-----------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Pyridine | U | | | 0.125 | mg/L | 1 | B16D033 | Apr-13-16 | Apr-21-16 |
| 2-Methylphenol | U | | | 0.125 | " | " | " | " | " |
| 3+4-Methylphenol | U | | | 0.250 | " | " | " | " | " |
| Hexachloroethane | U | | | 0.125 | " | " | " | " | " |
| Nitrobenzene | U | | | 0.125 | " | " | " | " | " |
| Hexachlorobutadiene | U | | | 0.125 | " | " | " | " | " |
| 2,4,6-Trichlorophenol | U | | | 0.125 | " | " | " | " | " |
| 2,4,5-Trichlorophenol | U | | | 0.125 | " | " | " | " | " |
| 2,4-Dinitrotoluene | U | | | 0.0250 | " | " | " | " | " |
| Hexachlorobenzene | U | | | 0.125 | " | " | " | " | " |
| Pentachlorophenol | U | | | 0.625 | " | " | " | " | " |

| | | | | | | | | | |
|---------------------------------|--------|--|--|-------|--|----------------|-------|----------|----------|
| Surogate | Result | | | %REC | | %REC Limits | Batch | Prepared | Analyzed |
| Surrogate: Pyridine-d5 | 0.264 | | | 42.2% | | 20.4-71.4 | " | " | " |
| Surrogate: 2-Fluorophenol | 0.250 | | | 40.0% | | 28.7-72.9 | " | " | " |
| Surrogate: Phenol-d5 | 0.227 | | | 36.3% | | 22.1-61.7 | " | " | " |
| Surrogate: Nitrobenzene-d5 | 0.318 | | | 50.8% | | 42.1-90.1 | " | " | " |
| Surrogate: 2-Fluorobiphenyl | 0.264 | | | 42.3% | | 40.3-92.5 | " | " | " |
| Surrogate: 2,4,6-Tribromophenol | 0.497 | | | 79.5% | | 42.5-107 | " | " | " |
| Surrogate: Terphenyl-d14 | 0.562 | | | 90.0% | | 58.6-111 | " | " | " |



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Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-09-16 17:21

Semivolatiles by GC/MS, EPA 8270D (modified)
US EPA Region 5 Chicago Regional Laboratory

3301604 (1603050-04) Soil Sampled: Mar-30-16 14:30 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|-----------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Pyridine | U | | | 0.125 | mg/L | 1 | B16D033 | Apr-13-16 | Apr-21-16 |
| 2-Methylphenol | 0.137 | | | 0.125 | " | " | " | " | " |
| 3+4-Methylphenol | 0.318 | | | 0.250 | " | " | " | " | " |
| Hexachloroethane | U | | | 0.125 | " | " | " | " | " |
| Nitrobenzene | U | | | 0.125 | " | " | " | " | " |
| Hexachlorobutadiene | U | | | 0.125 | " | " | " | " | " |
| 2,4,6-Trichlorophenol | U | | | 0.125 | " | " | " | " | " |
| 2,4,5-Trichlorophenol | U | | | 0.125 | " | " | " | " | " |
| 2,4-Dinitrotoluene | U | | | 0.0250 | " | " | " | " | " |
| Hexachlorobenzene | U | | | 0.125 | " | " | " | " | " |
| Pentachlorophenol | U | | | 0.625 | " | " | " | " | " |

| Surogate | Result | %REC | %REC Limits | Batch | Prepared | Analyzed |
|---------------------------------|--------|-------|----------------|-------|----------|----------|
| Surrogate: Pyridine-d5 | 0.168 | 26.8% | 20.4-71.4 | " | " | " |
| Surrogate: 2-Fluorophenol | 0.310 | 49.6% | 28.7-72.9 | " | " | " |
| Surrogate: Phenol-d5 | 0.369 | 59.1% | 22.1-61.7 | " | " | " |
| Surrogate: Nitrobenzene-d5 | 0.337 | 53.9% | 42.1-90.1 | " | " | " |
| Surrogate: 2-Fluorobiphenyl | 0.355 | 56.8% | 40.3-92.5 | " | " | " |
| Surrogate: 2,4,6-Tribromophenol | 0.636 | 102% | 42.5-107 | " | " | " |
| Surrogate: Terphenyl-d14 | 0.560 | 89.7% | 58.6-111 | " | " | " |

3301605 (1603050-05) Soil Sampled: Mar-30-16 14:40 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|-----------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Pyridine | U | | | 0.125 | mg/L | 1 | B16D033 | Apr-13-16 | Apr-21-16 |
| 2-Methylphenol | 0.440 | | | 0.125 | " | " | " | " | " |
| 3+4-Methylphenol | 0.784 | | | 0.250 | " | " | " | " | " |
| Hexachloroethane | U | | | 0.125 | " | " | " | " | " |
| Nitrobenzene | U | | | 0.125 | " | " | " | " | " |
| Hexachlorobutadiene | U | | | 0.125 | " | " | " | " | " |
| 2,4,6-Trichlorophenol | U | | | 0.125 | " | " | " | " | " |
| 2,4,5-Trichlorophenol | U | | | 0.125 | " | " | " | " | " |
| 2,4-Dinitrotoluene | U | | | 0.0250 | " | " | " | " | " |
| Hexachlorobenzene | U | | | 0.125 | " | " | " | " | " |
| Pentachlorophenol | U | | | 0.625 | " | " | " | " | " |



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Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-09-16 17:21

Semivolatiles by GC/MS, EPA 8270D (modified)
US EPA Region 5 Chicago Regional Laboratory

3301605 (1603050-05) Soil Sampled: Mar-30-16 14:40 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|---------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|---------|-----------|-----------|
| Surogate | Result | | | %REC | | %REC Limits | Batch | Prepared | Analyzed |
| Surrogate: Pyridine-d5 | 0.262 | | | 41.9% | | 20.4-71.4 | B16D033 | Apr-13-16 | Apr-21-16 |
| Surrogate: 2-Fluorophenol | 0.328 | | | 52.4% | | 28.7-72.9 | " | " | " |
| Surrogate: Phenol-d5 | 0.392 | | | 62.7% | | 22.1-61.7 | " | " | " |
| Surrogate: Nitrobenzene-d5 | 0.386 | | | 61.7% | | 42.1-90.1 | " | " | " |
| Surrogate: 2-Fluorobiphenyl | 0.383 | | | 61.3% | | 40.3-92.5 | " | " | " |
| Surrogate: 2,4,6-Tribromophenol | 0.652 | | | 104% | | 42.5-107 | " | " | " |
| Surrogate: Terphenyl-d14 | 0.574 | | | 91.9% | | 58.6-111 | " | " | " |

3301606 (1603050-06) Soil Sampled: Mar-30-16 15:21 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|-----------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Pyridine | U | | | 0.125 | mg/L | 1 | B16D033 | Apr-13-16 | Apr-21-16 |
| 2-Methylphenol | U | | | 0.125 | " | " | " | " | " |
| 3+4-Methylphenol | U | | | 0.250 | " | " | " | " | " |
| Hexachloroethane | U | | | 0.125 | " | " | " | " | " |
| Nitrobenzene | U | | | 0.125 | " | " | " | " | " |
| Hexachlorobutadiene | U | | | 0.125 | " | " | " | " | " |
| 2,4,6-Trichlorophenol | U | | | 0.125 | " | " | " | " | " |
| 2,4,5-Trichlorophenol | U | | | 0.125 | " | " | " | " | " |
| 2,4-Dinitrotoluene | U | | | 0.0250 | " | " | " | " | " |
| Hexachlorobenzene | U | | | 0.125 | " | " | " | " | " |
| Pentachlorophenol | U | | | 0.625 | " | " | " | " | " |

| | | | | | | | | | |
|---------------------------------|--------|--|--|-------|--|----------------|-------|----------|----------|
| Surogate | Result | | | %REC | | %REC Limits | Batch | Prepared | Analyzed |
| Surrogate: Pyridine-d5 | 0.260 | | | 41.6% | | 20.4-71.4 | " | " | " |
| Surrogate: 2-Fluorophenol | 0.263 | | | 42.1% | | 28.7-72.9 | " | " | " |
| Surrogate: Phenol-d5 | 0.247 | | | 39.6% | | 22.1-61.7 | " | " | " |
| Surrogate: Nitrobenzene-d5 | 0.344 | | | 55.1% | | 42.1-90.1 | " | " | " |
| Surrogate: 2-Fluorobiphenyl | 0.314 | | | 50.2% | | 40.3-92.5 | " | " | " |
| Surrogate: 2,4,6-Tribromophenol | 0.529 | | | 84.7% | | 42.5-107 | " | " | " |
| Surrogate: Terphenyl-d14 | 0.604 | | | 96.6% | | 58.6-111 | " | " | " |



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Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-09-16 17:21

Semivolatiles by GC/MS, EPA 8270D (modified)
US EPA Region 5 Chicago Regional Laboratory

3301607 (1603050-07) Soil Sampled: Mar-30-16 15:36 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|-----------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Pyridine | U | | | 0.125 | mg/L | 1 | B16D033 | Apr-13-16 | Apr-21-16 |
| 2-Methylphenol | U | | | 0.125 | " | " | " | " | " |
| 3+4-Methylphenol | U | | | 0.250 | " | " | " | " | " |
| Hexachloroethane | U | | | 0.125 | " | " | " | " | " |
| Nitrobenzene | U | | | 0.125 | " | " | " | " | " |
| Hexachlorobutadiene | U | | | 0.125 | " | " | " | " | " |
| 2,4,6-Trichlorophenol | U | | | 0.125 | " | " | " | " | " |
| 2,4,5-Trichlorophenol | U | | | 0.125 | " | " | " | " | " |
| 2,4-Dinitrotoluene | U | | | 0.0250 | " | " | " | " | " |
| Hexachlorobenzene | U | | | 0.125 | " | " | " | " | " |
| Pentachlorophenol | U | | | 0.625 | " | " | " | " | " |

| Surogate | Result | %REC | %REC Limits | Batch | Prepared | Analyzed |
|---------------------------------|--------|-------|----------------|-------|----------|----------|
| Surrogate: Pyridine-d5 | 0.322 | 51.5% | 20.4-71.4 | " | " | " |
| Surrogate: 2-Fluorophenol | 0.296 | 47.3% | 28.7-72.9 | " | " | " |
| Surrogate: Phenol-d5 | 0.286 | 45.8% | 22.1-61.7 | " | " | " |
| Surrogate: Nitrobenzene-d5 | 0.396 | 63.4% | 42.1-90.1 | " | " | " |
| Surrogate: 2-Fluorobiphenyl | 0.350 | 56.1% | 40.3-92.5 | " | " | " |
| Surrogate: 2,4,6-Tribromophenol | 0.572 | 91.6% | 42.5-107 | " | " | " |
| Surrogate: Terphenyl-d14 | 0.548 | 87.7% | 58.6-111 | " | " | " |

3301608 (1603050-08) Soil Sampled: Mar-30-16 15:47 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|-----------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Pyridine | U | | | 0.125 | mg/L | 1 | B16D033 | Apr-13-16 | Apr-21-16 |
| 2-Methylphenol | U | | | 0.125 | " | " | " | " | " |
| 3+4-Methylphenol | U | | | 0.250 | " | " | " | " | " |
| Hexachloroethane | U | | | 0.125 | " | " | " | " | " |
| Nitrobenzene | U | | | 0.125 | " | " | " | " | " |
| Hexachlorobutadiene | U | | | 0.125 | " | " | " | " | " |
| 2,4,6-Trichlorophenol | U | | | 0.125 | " | " | " | " | " |
| 2,4,5-Trichlorophenol | U | | | 0.125 | " | " | " | " | " |
| 2,4-Dinitrotoluene | U | | | 0.0250 | " | " | " | " | " |
| Hexachlorobenzene | U | | | 0.125 | " | " | " | " | " |
| Pentachlorophenol | U | | | 0.625 | " | " | " | " | " |



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Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-09-16 17:21

Semivolatiles by GC/MS, EPA 8270D (modified)
US EPA Region 5 Chicago Regional Laboratory

3301608 (1603050-08) Soil Sampled: Mar-30-16 15:47 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|---------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|---------|-----------|-----------|
| Surogate | Result | | | %REC | | %REC Limits | Batch | Prepared | Analyzed |
| Surrogate: Pyridine-d5 | 0.249 | | | 39.8% | | 20.4-71.4 | B16D033 | Apr-13-16 | Apr-21-16 |
| Surrogate: 2-Fluorophenol | 0.252 | | | 40.3% | | 28.7-72.9 | " | " | " |
| Surrogate: Phenol-d5 | 0.246 | | | 39.4% | | 22.1-61.7 | " | " | " |
| Surrogate: Nitrobenzene-d5 | 0.329 | | | 52.6% | | 42.1-90.1 | " | " | " |
| Surrogate: 2-Fluorobiphenyl | 0.314 | | | 50.3% | | 40.3-92.5 | " | " | " |
| Surrogate: 2,4,6-Tribromophenol | 0.521 | | | 83.3% | | 42.5-107 | " | " | " |
| Surrogate: Terphenyl-d14 | 0.569 | | | 91.0% | | 58.6-111 | " | " | " |

3301609 (1603050-09) Soil Sampled: Mar-30-16 16:04 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|-----------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Pyridine | U | | | 0.125 | mg/L | 1 | B16D033 | Apr-13-16 | Apr-21-16 |
| 2-Methylphenol | U | | | 0.125 | " | " | " | " | " |
| 3+4-Methylphenol | U | | | 0.250 | " | " | " | " | " |
| Hexachloroethane | U | | | 0.125 | " | " | " | " | " |
| Nitrobenzene | U | | | 0.125 | " | " | " | " | " |
| Hexachlorobutadiene | U | | | 0.125 | " | " | " | " | " |
| 2,4,6-Trichlorophenol | U | | | 0.125 | " | " | " | " | " |
| 2,4,5-Trichlorophenol | U | | | 0.125 | " | " | " | " | " |
| 2,4-Dinitrotoluene | U | | | 0.0250 | " | " | " | " | " |
| Hexachlorobenzene | U | | | 0.125 | " | " | " | " | " |
| Pentachlorophenol | U | | | 0.625 | " | " | " | " | " |

| | | | | | | | | | |
|---------------------------------|--------|--|--|-------|--|----------------|-------|----------|----------|
| Surogate | Result | | | %REC | | %REC Limits | Batch | Prepared | Analyzed |
| Surrogate: Pyridine-d5 | 0.252 | | | 40.2% | | 20.4-71.4 | " | " | " |
| Surrogate: 2-Fluorophenol | 0.264 | | | 42.2% | | 28.7-72.9 | " | " | " |
| Surrogate: Phenol-d5 | 0.244 | | | 39.0% | | 22.1-61.7 | " | " | " |
| Surrogate: Nitrobenzene-d5 | 0.333 | | | 53.3% | | 42.1-90.1 | " | " | " |
| Surrogate: 2-Fluorobiphenyl | 0.282 | | | 45.1% | | 40.3-92.5 | " | " | " |
| Surrogate: 2,4,6-Tribromophenol | 0.513 | | | 82.1% | | 42.5-107 | " | " | " |
| Surrogate: Terphenyl-d14 | 0.522 | | | 83.6% | | 58.6-111 | " | " | " |



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Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-09-16 17:21

Semivolatiles by GC/MS, EPA 8270D (modified)
US EPA Region 5 Chicago Regional Laboratory

3301610 (1603050-10) Soil Sampled: Mar-30-16 16:14 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|-----------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Pyridine | U | | | 0.125 | mg/L | 1 | B16D033 | Apr-13-16 | Apr-21-16 |
| 2-Methylphenol | U | | | 0.125 | " | " | " | " | " |
| 3+4-Methylphenol | U | | | 0.250 | " | " | " | " | " |
| Hexachloroethane | U | | | 0.125 | " | " | " | " | " |
| Nitrobenzene | U | | | 0.125 | " | " | " | " | " |
| Hexachlorobutadiene | U | | | 0.125 | " | " | " | " | " |
| 2,4,6-Trichlorophenol | U | | | 0.125 | " | " | " | " | " |
| 2,4,5-Trichlorophenol | U | | | 0.125 | " | " | " | " | " |
| 2,4-Dinitrotoluene | U | | | 0.0250 | " | " | " | " | " |
| Hexachlorobenzene | U | | | 0.125 | " | " | " | " | " |
| Pentachlorophenol | U | | | 0.625 | " | " | " | " | " |

| Surogate | Result | %REC | %REC Limits | Batch | Prepared | Analyzed |
|---------------------------------|--------|-------|----------------|-------|----------|----------|
| Surrogate: Pyridine-d5 | 0.256 | 41.0% | 20.4-71.4 | " | " | " |
| Surrogate: 2-Fluorophenol | 0.247 | 39.5% | 28.7-72.9 | " | " | " |
| Surrogate: Phenol-d5 | 0.243 | 38.8% | 22.1-61.7 | " | " | " |
| Surrogate: Nitrobenzene-d5 | 0.325 | 52.0% | 42.1-90.1 | " | " | " |
| Surrogate: 2-Fluorobiphenyl | 0.301 | 48.1% | 40.3-92.5 | " | " | " |
| Surrogate: 2,4,6-Tribromophenol | 0.515 | 82.4% | 42.5-107 | " | " | " |
| Surrogate: Terphenyl-d14 | 0.522 | 83.4% | 58.6-111 | " | " | " |

3301610DUP (1603050-11) Soil Sampled: Mar-30-16 16:29 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|-----------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Pyridine | U | | | 0.125 | mg/L | 1 | B16D033 | Apr-13-16 | Apr-21-16 |
| 2-Methylphenol | U | | | 0.125 | " | " | " | " | " |
| 3+4-Methylphenol | U | | | 0.250 | " | " | " | " | " |
| Hexachloroethane | U | | | 0.125 | " | " | " | " | " |
| Nitrobenzene | U | | | 0.125 | " | " | " | " | " |
| Hexachlorobutadiene | U | | | 0.125 | " | " | " | " | " |
| 2,4,6-Trichlorophenol | U | | | 0.125 | " | " | " | " | " |
| 2,4,5-Trichlorophenol | U | | | 0.125 | " | " | " | " | " |
| 2,4-Dinitrotoluene | U | | | 0.0250 | " | " | " | " | " |
| Hexachlorobenzene | U | | | 0.125 | " | " | " | " | " |
| Pentachlorophenol | U | | | 0.625 | " | " | " | " | " |



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Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-09-16 17:21

Semivolatiles by GC/MS, EPA 8270D (modified)
US EPA Region 5 Chicago Regional Laboratory

3301610DUP (1603050-11) Soil Sampled: Mar-30-16 16:29 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|-----------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|---------|-----------|-----------|
| Surrogate | Result | | | %REC | | %REC Limits | Batch | Prepared | Analyzed |
| Surrogate: Pyridine-d5 | 0.306 | | | 49.0% | | 20.4-71.4 | B16D033 | Apr-13-16 | Apr-21-16 |
| Surrogate: 2-Fluorophenol | 0.292 | | | 46.6% | | 28.7-72.9 | " | " | " |
| Surrogate: Phenol-d5 | 0.280 | | | 44.8% | | 22.1-61.7 | " | " | " |
| Surrogate: Nitrobenzene-d5 | 0.392 | | | 62.7% | | 42.1-90.1 | " | " | " |
| Surrogate: 2-Fluorobiphenyl | 0.354 | | | 56.7% | | 40.3-92.5 | " | " | " |
| Surrogate: 2,4,6-Trihydroxyphenol | 0.550 | | | 87.9% | | 42.5-107 | " | " | " |
| Surrogate: Terphenyl-d14 | 0.544 | | | 87.0% | | 58.6-111 | " | " | " |



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Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-09-16 17:21

Semivolatiles by GC/MS, EPA 8270D (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B16D033 - Solvent Extraction

Blank (B16D033-BLK1)

Prepared: Apr-13-16 Analyzed: Apr-21-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------------|-----|--------------|
| Pyridine | U | (SURR), J | | 0.125 | mg/L | | | | | | |
| 2-Methylphenol | U | | | 0.125 | " | | | | | | |
| 3+4-Methylphenol | U | | | 0.250 | " | | | | | | |
| Hexachloroethane | U | | | 0.125 | " | | | | | | |
| Nitrobenzene | U | | | 0.125 | " | | | | | | |
| Hexachlorobutadiene | U | | | 0.125 | " | | | | | | |
| 2,4,6-Trichlorophenol | U | | | 0.125 | " | | | | | | |
| 2,4,5-Trichlorophenol | U | | | 0.125 | " | | | | | | |
| 2,4-Dinitrotoluene | U | | | 0.0250 | " | | | | | | |
| Hexachlorobenzene | U | | | 0.125 | " | | | | | | |
| Pentachlorophenol | U | | | 0.625 | " | | | | | | |
| Surrogate: Pyridine-d5 | 0.0918 | | | | " | 0.6250 | | 14.7% | 20.4-71.4 | | |
| Surrogate: 2-Fluorophenol | 0.264 | | | | " | 0.6250 | | 42.2% | 28.7-72.9 | | |
| Surrogate: Phenol-d5 | 0.227 | | | | " | 0.6250 | | 36.4% | 22.1-61.7 | | |
| Surrogate: Nitrobenzene-d5 | 0.344 | | | | " | 0.6250 | | 55.1% | 42.1-90.1 | | |
| Surrogate: 2-Fluorobiphenyl | 0.332 | | | | " | 0.6250 | | 53.0% | 40.3-92.5 | | |
| Surrogate: 2,4,6-Tribromophenol | 0.381 | | | | " | 0.6250 | | 61.0% | 42.5-107 | | |
| Surrogate: Terphenyl-d14 | 0.536 | | | | " | 0.6250 | | 85.7% | 58.6-111 | | |

Blank (B16D033-BLK2)

Prepared: Apr-13-16 Analyzed: Apr-21-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|-----------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|
| Pyridine | U | | | 0.125 | mg/L | | | | | | |
| 2-Methylphenol | U | | | 0.125 | " | | | | | | |
| 3+4-Methylphenol | U | | | 0.250 | " | | | | | | |
| Hexachloroethane | U | | | 0.125 | " | | | | | | |
| Nitrobenzene | U | | | 0.125 | " | | | | | | |
| Hexachlorobutadiene | U | | | 0.125 | " | | | | | | |
| 2,4,6-Trichlorophenol | U | | | 0.125 | " | | | | | | |
| 2,4,5-Trichlorophenol | U | | | 0.125 | " | | | | | | |
| 2,4-Dinitrotoluene | U | | | 0.0250 | " | | | | | | |
| Hexachlorobenzene | U | | | 0.125 | " | | | | | | |
| Pentachlorophenol | U | | | 0.625 | " | | | | | | |



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Semivolatiles by GC/MS, EPA 8270D (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B16D033 - Solvent Extraction

Blank (B16D033-BLK2)

Prepared: Apr-13-16 Analyzed: Apr-21-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------------|-----|--------------|
| Surrogate: Pyridine-d5 | 0.279 | | | | mg/L | 0.6250 | | 44.7% | 20.4-71.4 | | |
| Surrogate: 2-Fluorophenol | 0.268 | | | | " | 0.6250 | | 43.0% | 28.7-72.9 | | |
| Surrogate: Phenol-d5 | 0.242 | | | | " | 0.6250 | | 38.8% | 22.1-61.7 | | |
| Surrogate: Nitrobenzene-d5 | 0.320 | | | | " | 0.6250 | | 51.3% | 42.1-90.1 | | |
| Surrogate: 2-Fluorobiphenyl | 0.288 | | | | " | 0.6250 | | 46.0% | 40.3-92.5 | | |
| Surrogate: 2,4,6-Tribromophenol | 0.401 | | | | " | 0.6250 | | 64.2% | 42.5-107 | | |
| Surrogate: Terphenyl-d14 | 0.570 | | | | " | 0.6250 | | 91.2% | 58.6-111 | | |

Blank (B16D033-BLK3)

Prepared: Apr-13-16 Analyzed: Apr-21-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------------|-----|--------------|
| Pyridine | U | | | 0.125 | mg/L | | | | | | |
| 2-Methylphenol | U | | | 0.125 | " | | | | | | |
| 3+4-Methylphenol | U | | | 0.250 | " | | | | | | |
| Hexachloroethane | U | | | 0.125 | " | | | | | | |
| Nitrobenzene | U | | | 0.125 | " | | | | | | |
| Hexachlorobutadiene | U | | | 0.125 | " | | | | | | |
| 2,4,6-Trichlorophenol | U | | | 0.125 | " | | | | | | |
| 2,4,5-Trichlorophenol | U | | | 0.125 | " | | | | | | |
| 2,4-Dinitrotoluene | U | | | 0.0250 | " | | | | | | |
| Hexachlorobenzene | U | | | 0.125 | " | | | | | | |
| Pentachlorophenol | U | | | 0.625 | " | | | | | | |
| Surrogate: Pyridine-d5 | 0.264 | | | | " | 0.6250 | | 42.3% | 20.4-71.4 | | |
| Surrogate: 2-Fluorophenol | 0.267 | | | | " | 0.6250 | | 42.8% | 28.7-72.9 | | |
| Surrogate: Phenol-d5 | 0.238 | | | | " | 0.6250 | | 38.0% | 22.1-61.7 | | |
| Surrogate: Nitrobenzene-d5 | 0.333 | | | | " | 0.6250 | | 53.3% | 42.1-90.1 | | |
| Surrogate: 2-Fluorobiphenyl | 0.310 | | | | " | 0.6250 | | 49.6% | 40.3-92.5 | | |
| Surrogate: 2,4,6-Tribromophenol | 0.418 | | | | " | 0.6250 | | 66.8% | 42.5-107 | | |
| Surrogate: Terphenyl-d14 | 0.575 | | | | " | 0.6250 | | 92.0% | 58.6-111 | | |



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Reported:
May-09-16 17:21

Semivolatiles by GC/MS, EPA 8270D (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B16D033 - Solvent Extraction

LCS (B16D033-BS1)

Prepared: Apr-13-16 Analyzed: Apr-21-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC Limits | RPD | RPD Limit |
|---------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-----------------|-----|--------------|
| Pyridine | 0.206 | | | 0.125 | mg/L | 0.6250 | | 33.0% 31.5-68.1 | | |
| 2-Methylphenol | 0.249 | | | 0.125 | " | 0.6250 | | 39.8% 25.9-107 | | |
| 3+4-Methylphenol | 0.491 | | | 0.250 | " | 1.250 | | 39.3% 28.7-101 | | |
| Hexachloroethane | 0.208 | | | 0.125 | " | 0.6250 | | 33.3% 30.6-93.6 | | |
| Nitrobenzene | 0.264 | | | 0.125 | " | 0.6250 | | 42.2% 32.7-111 | | |
| Hexachlorobutadiene | 0.195 | | | 0.125 | " | 0.6250 | | 31.2% 31.3-99.7 | | |
| 2,4,6-Trichlorophenol | 0.262 | | | 0.125 | " | 0.6250 | | 42.0% 41.5-112 | | |
| 2,4,5-Trichlorophenol | 0.309 | | | 0.125 | " | 0.6250 | | 49.5% 50.8-117 | | |
| 2,4-Dinitrotoluene | 0.357 | | | 0.0250 | " | 0.6250 | | 57.2% 63.4-128 | | |
| Hexachlorobenzene | 0.451 | | | 0.125 | " | 0.6250 | | 72.1% 54.5-122 | | |
| Pentachlorophenol | 0.480 | | | 0.625 | " | 0.6250 | | 76.8% 60.4-120 | | |
| Surrogate: Pyridine-d5 | 0.200 | | | | " | 0.6250 | | 32.1% 20.4-71.4 | | |
| Surrogate: 2-Fluorophenol | 0.202 | | | | " | 0.6250 | | 32.2% 28.7-72.9 | | |
| Surrogate: Phenol-d5 | 0.183 | | | | " | 0.6250 | | 29.2% 22.1-61.7 | | |
| Surrogate: Nitrobenzene-d5 | 0.264 | | | | " | 0.6250 | | 42.3% 42.1-90.1 | | |
| Surrogate: 2-Fluorobiphenyl | 0.264 | | | | " | 0.6250 | | 42.3% 40.3-92.5 | | |
| Surrogate: 2,4,6-Tribromophenol | 0.372 | | | | " | 0.6250 | | 59.6% 42.5-107 | | |
| Surrogate: Terphenyl-d14 | 0.586 | | | | " | 0.6250 | | 93.8% 58.6-111 | | |

LCS Dup (B16D033-BS1)

Prepared: Apr-13-16 Analyzed: Apr-21-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC Limits | RPD | RPD Limit |
|-----------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-----------------|------|--------------|
| Pyridine | 0.224 | | | 0.125 | mg/L | 0.6250 | | 35.8% 31.5-68.1 | 8.25 | 33.7 |
| 2-Methylphenol | 0.278 | | | 0.125 | " | 0.6250 | | 44.4% 25.9-107 | 10.8 | 30 |
| 3+4-Methylphenol | 0.553 | | | 0.250 | " | 1.250 | | 44.2% 28.7-101 | 11.9 | 30 |
| Hexachloroethane | 0.237 | | | 0.125 | " | 0.6250 | | 38.0% 30.6-93.6 | 13.0 | 30 |
| Nitrobenzene | 0.309 | | | 0.125 | " | 0.6250 | | 49.4% 32.7-111 | 15.8 | 32 |
| Hexachlorobutadiene | 0.239 | | | 0.125 | " | 0.6250 | | 38.2% 31.3-99.7 | 20.1 | 30 |
| 2,4,6-Trichlorophenol | 0.320 | | | 0.125 | " | 0.6250 | | 51.1% 41.5-112 | 19.6 | 30 |
| 2,4,5-Trichlorophenol | 0.358 | | | 0.125 | " | 0.6250 | | 57.3% 50.8-117 | 14.7 | 30 |
| 2,4-Dinitrotoluene | 0.406 | | | 0.0250 | " | 0.6250 | | 64.9% 63.4-128 | 12.7 | 30 |
| Hexachlorobenzene | 0.476 | | | 0.125 | " | 0.6250 | | 76.2% 54.5-122 | 5.45 | 30 |
| Pentachlorophenol | 0.456 | | | 0.625 | " | 0.6250 | | 72.9% 60.4-120 | 5.24 | 30 |



Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-09-16 17:21

Semivolatiles by GC/MS, EPA 8270D (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B16D033 - Solvent Extraction

LCS Dup (B16D033-BSD1)

Prepared: Apr-13-16 Analyzed: Apr-21-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------------|-----|--------------|
| Surrogate: Pyridine-d5 | 0.219 | | | | mg/L | 0.6250 | | 35.0% | 20.4-71.4 | | |
| Surrogate: 2-Fluorophenol | 0.231 | | | | " | 0.6250 | | 37.0% | 28.7-72.9 | | |
| Surrogate: Phenol-d5 | 0.200 | | | | " | 0.6250 | | 31.9% | 22.1-61.7 | | |
| Surrogate: Nitrobenzene-d5 | 0.304 | | | | " | 0.6250 | | 48.7% | 42.1-90.1 | | |
| Surrogate: 2-Fluorobiphenyl | 0.298 | | | | " | 0.6250 | | 47.6% | 40.3-92.5 | | |
| Surrogate: 2,4,6-Tribromophenol | 0.425 | | | | " | 0.6250 | | 68.0% | 42.5-107 | | |
| Surrogate: Terphenyl-d14 | 0.585 | | | | " | 0.6250 | | 93.6% | 58.6-111 | | |

MRL Check (B16D033-MRL1)

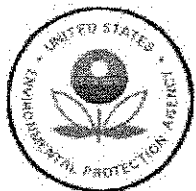
Prepared: Apr-13-16 Analyzed: Apr-21-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---------------------------------|---------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------------|-----|--------------|
| 2-Methylphenol | 4.75E-3 | (SURR), L | | 0.125 | mg/L | 2.500E-2 | | 19.0% | 25.9-107 | | |
| 3+4-Methylphenol | 0.0132 | (SURR), L | | 0.250 | " | 5.000E-2 | | 26.5% | 28.7-101 | | |
| Hexachloroethane | 1.50E-3 | (SURR), L | | 0.125 | " | 2.500E-2 | | 6.00% | 30.6-93.6 | | |
| Nitrobenzene | 6.25E-3 | (SURR), L | | 0.125 | " | 2.500E-2 | | 25.0% | 32.7-111 | | |
| Hexachlorobutadiene | 1.25E-3 | (SURR), L | | 0.125 | " | 2.500E-2 | | 5.00% | 31.3-99.7 | | |
| 2,4,6-Trichlorophenol | 2.25E-3 | (SURR), L | | 0.125 | " | 2.500E-2 | | 9.00% | 41.5-112 | | |
| 2,4,5-Trichlorophenol | 4.25E-3 | (SURR), L | | 0.125 | " | 2.500E-2 | | 17.0% | 50.8-117 | | |
| 2,4-Dinitrotoluene | 0.0180 | (SURR), L | | 0.0250 | " | 2.500E-2 | | 72.0% | 63.4-128 | | |
| Hexachlorobenzene | 5.75E-3 | (SURR), L | | 0.125 | " | 2.500E-2 | | 23.0% | 54.5-122 | | |
| Pentachlorophenol | U | (SURR), J | | 0.625 | " | 2.500E-2 | | % | 60.4-120 | | |
| Surrogate: 2-Fluorophenol | 0.139 | | | | " | 0.6250 | | 22.2% | 28.7-72.9 | | |
| Surrogate: Phenol-d5 | 0.117 | | | | " | 0.6250 | | 18.7% | 22.1-61.7 | | |
| Surrogate: Nitrobenzene-d5 | 0.136 | | | | " | 0.6250 | | 21.8% | 42.1-90.1 | | |
| Surrogate: 2-Fluorobiphenyl | 0.147 | | | | " | 0.6250 | | 23.5% | 40.3-92.5 | | |
| Surrogate: 2,4,6-Tribromophenol | 0.0915 | | | | " | 0.6250 | | 14.6% | 42.5-107 | | |
| Surrogate: Terphenyl-d14 | 0.484 | | | | " | 0.6250 | | 77.4% | 58.6-111 | | |

MRL Check (B16D033-MRL2)

Prepared: Apr-13-16 Analyzed: Apr-21-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|----------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------------|-----|--------------|
| Pyridine | 0.0522 | | | 0.125 | mg/L | 0.1250 | | 41.8% | 31.5-68.1 | | |
| 2-Methylphenol | 0.0618 | | | 0.125 | " | 0.1250 | | 49.4% | 25.9-107 | | |



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Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-09-16 17:21

Semivolatiles by GC/MS, EPA 8270D (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B16D033 - Solvent Extraction

MRL Check (B16D033-MRL2)

Prepared: Apr-13-16 Analyzed: Apr-21-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------------|-----|--------------|
| 3+4-Methylphenol | 0.124 | | | 0.250 | mg/L | 0.2500 | | 49.7% | 28.7-101 | | |
| Hexachloroethane | 0.0450 | | | 0.125 | " | 0.1250 | | 36.0% | 30.6-93.6 | | |
| Nitrobenzene | 0.0642 | | | 0.125 | " | 0.1250 | | 51.4% | 32.7-111 | | |
| Hexachlorobutadiene | 0.0430 | | | 0.125 | " | 0.1250 | | 34.4% | 31.3-99.7 | | |
| 2,4,6-Trichlorophenol | 0.0595 | | | 0.125 | " | 0.1250 | | 47.6% | 41.5-112 | | |
| 2,4,5-Trichlorophenol | 0.0735 | | | 0.125 | " | 0.1250 | | 58.8% | 50.8-117 | | |
| 2,4-Dinitrotoluene | 0.0635 | | | 0.0250 | " | 0.1250 | | 50.8% | 63.4-128 | | |
| Hexachlorobenzene | 0.0728 | | | 0.125 | " | 0.1250 | | 58.2% | 54.5-122 | | |
| Pentachlorophenol | 0.0705 | | | 0.625 | " | 0.1250 | | 56.4% | 60.4-120 | | |
| Surrogate: Pyridine-d5 | 0.253 | | | | " | 0.6250 | | 40.3% | 20.4-71.4 | | |
| Surrogate: 2-Fluorophenol | 0.260 | | | | " | 0.6250 | | 41.6% | 28.7-72.9 | | |
| Surrogate: Phenol-d5 | 0.226 | | | | " | 0.6250 | | 36.2% | 22.1-61.7 | | |
| Surrogate: Nitrobenzene-d5 | 0.328 | | | | " | 0.6250 | | 52.6% | 42.1-90.1 | | |
| Surrogate: 2-Fluorobiphenyl | 0.309 | | | | " | 0.6250 | | 49.5% | 40.3-92.5 | | |
| Surrogate: 2,4,6-Tribromophenol | 0.405 | | | | " | 0.6250 | | 64.8% | 42.5-107 | | |
| Surrogate: Terphenyl-d14 | 0.582 | | | | " | 0.6250 | | 93.0% | 58.6-111 | | |

Matrix Spike (B16D033-MS1)

Source: 1603050-01

Prepared: Apr-13-16 Analyzed: Apr-21-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---------------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------------|-----|--------------|
| Pyridine | 0.213 | | | 0.125 | mg/L | 0.6250 | U | 34.1% | 31.5-68.1 | | |
| 2-Methylphenol | 0.309 | | | 0.125 | " | 0.6250 | U | 49.4% | 25.9-107 | | |
| 3+4-Methylphenol | 0.651 | | | 0.250 | " | 1.250 | U | 52.1% | 28.7-101 | | |
| Hexachloroethane | 0.242 | | | 0.125 | " | 0.6250 | U | 38.7% | 30.6-93.6 | | |
| Nitrobenzene | 0.303 | | | 0.125 | " | 0.6250 | U | 48.4% | 32.7-111 | | |
| Hexachlorobutadiene | 0.249 | | | 0.125 | " | 0.6250 | U | 39.9% | 31.3-99.7 | | |
| 2,4,6-Trichlorophenol | 0.357 | | | 0.125 | " | 0.6250 | U | 57.1% | 41.5-112 | | |
| 2,4,5-Trichlorophenol | 0.452 | | | 0.125 | " | 0.6250 | U | 72.4% | 50.8-117 | | |
| 2,4-Dinitrotoluene | 0.441 | | | 0.0250 | " | 0.6250 | U | 70.6% | 63.4-128 | | |
| Hexachlorobenzene | 0.426 | | | 0.125 | " | 0.6250 | U | 68.1% | 54.5-122 | | |
| Pentachlorophenol | 0.508 | | | 0.625 | " | 0.6250 | U | 81.3% | 60.4-120 | | |
| Surrogate: Pyridine-d5 | 0.210 | | | | " | 0.6250 | | 33.6% | 20.4-71.4 | | |
| Surrogate: 2-Fluorophenol | 0.276 | | | | " | 0.6250 | | 44.1% | 28.7-72.9 | | |



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Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

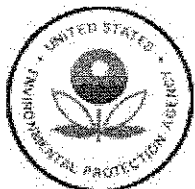
Reported:
May-09-16 17:21

Semivolatiles by GC/MS, EPA 8270D (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B16D033 - Solvent Extraction

| Matrix Spike (B16D033-MS1) | | | Source: 1603050-01 | | | Prepared: Apr-13-16 Analyzed: Apr-21-16 | | | | | |
|---------------------------------|--------|--------------------|--------------------|-----------------|-------|---|---------------|-------|-----------|-----|-----------|
| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | Limits | RPD | RPD Limit |
| Surrogate: Phenol-d5 | 0.278 | | | | mg/L | 0.6250 | | 44.5% | 22.1-61.7 | | |
| Surrogate: Nitrobenzene-d5 | 0.302 | | | | " | 0.6250 | | 48.4% | 42.1-90.1 | | |
| Surrogate: 2-Fluorobiphenyl | 0.305 | | | | " | 0.6250 | | 48.8% | 40.3-92.5 | | |
| Surrogate: 2,4,6-Tribromophenol | 0.478 | | | | " | 0.6250 | | 76.4% | 42.5-107 | | |
| Surrogate: Terphenyl-d14 | 0.590 | | | | " | 0.6250 | | 94.4% | 58.6-111 | | |

| Matrix Spike Dup (B16D033-MSD1) | | | Source: 1603050-01 | | | Prepared: Apr-13-16 Analyzed: Apr-21-16 | | | | | |
|---------------------------------|--------|--------------------|--------------------|-----------------|-------|---|---------------|-------|-----------|------|-----------|
| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | Limits | RPD | RPD Limit |
| Pyridine | 0.292 | | | 0.125 | mg/L | 0.6250 | U | 46.8% | 31.5-68.1 | 31.3 | 33.7 |
| 2-Methylphenol | 0.354 | | | 0.125 | " | 0.6250 | U | 56.7% | 25.9-107 | 13.7 | 30 |
| 3+4-Methylphenol | 0.704 | | | 0.250 | " | 1.250 | U | 56.4% | 28.7-101 | 7.89 | 30 |
| Hexachloroethane | 0.298 | | | 0.125 | " | 0.6250 | U | 47.7% | 30.6-93.6 | 20.8 | 30 |
| Nitrobenzene | 0.366 | | | 0.125 | " | 0.6250 | U | 58.6% | 32.7-111 | 19.1 | 32 |
| Hexachlorobutadiene | 0.314 | | | 0.125 | " | 0.6250 | U | 50.2% | 31.3-99.7 | 22.9 | 30 |
| 2,4,6-Trichlorophenol | 0.375 | | | 0.125 | " | 0.6250 | U | 60.0% | 41.5-112 | 4.98 | 30 |
| 2,4,5-Trichlorophenol | 0.471 | | | 0.125 | " | 0.6250 | U | 75.3% | 50.8-117 | 3.95 | 30 |
| 2,4-Dinitrotoluene | 0.413 | | | 0.0250 | " | 0.6250 | U | 66.1% | 63.4-128 | 6.50 | 30 |
| Hexachlorobenzene | 0.438 | | | 0.125 | " | 0.6250 | U | 70.0% | 54.5-122 | 2.84 | 30 |
| Pentachlorophenol | 0.439 | | | 0.625 | " | 0.6250 | U | 70.3% | 60.4-120 | 14.5 | 30 |
| Surrogate: Pyridine-d5 | 0.290 | | | | " | 0.6250 | | 46.5% | 20.4-71.4 | | |
| Surrogate: 2-Fluorophenol | 0.265 | | | | " | 0.6250 | | 42.4% | 28.7-72.9 | | |
| Surrogate: Phenol-d5 | 0.254 | | | | " | 0.6250 | | 40.7% | 22.1-61.7 | | |
| Surrogate: Nitrobenzene-d5 | 0.370 | | | | " | 0.6250 | | 59.2% | 42.1-90.1 | | |
| Surrogate: 2-Fluorobiphenyl | 0.366 | | | | " | 0.6250 | | 58.5% | 40.3-92.5 | | |
| Surrogate: 2,4,6-Tribromophenol | 0.449 | | | | " | 0.6250 | | 71.8% | 42.5-107 | | |
| Surrogate: Terphenyl-d14 | 0.529 | | | | " | 0.6250 | | 84.6% | 58.6-111 | | |



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Chicago Regional Laboratory

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RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-09-16 17:21

Notes and Definitions

- L The identification of the analyte is acceptable; the reported value may be biased low. The actual value is expected to be greater than the reported value.
- J The identification of the analyte is acceptable; the reported value is an estimate.
- (SURR) Associated surrogate recovery criteria not met for this analyte
- U Not Detected
- NR Not Reported



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

May 13, 2016

4SESD-ASB

MEMORANDUM

SUBJECT: FINAL Analytical Report
Project: 16-0333, Ortek, Inc.
Superfund Remedial

FROM: Terri White
ICS Analyst

THRU: Jeffrey Hendel, Chief
ASB Inorganic Chemistry Section

TO: Jeffrey Hendel

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the Analytical Support Branch's (ASB) Laboratory Operations and Quality Assurance Manual (ASB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the ASB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Section 5.2 of the ASB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

| Analyses Included in this report: | Method Used: | Accreditations: |
|------------------------------------|-------------------|-----------------|
| Physical Properties (PHYSP) | | |
| Physical Properties | EPA 200.2 (Soil) | NR |
| TCLP Metals (TCLPM) | | |
| TCLP Metals | EPA 200.8 (Soil) | ISO |
| TCLP Metals | EPA 200.8 (Waste) | ISO |
| TCLP Metals | EPA 245.1 (Water) | ISO |
| TCLP Metals | EPA 6010 (Soil) | ISO |
| TCLP Metals | EPA 6010 (Waste) | ISO |
| Total Metals (TMTL) | | |
| Total Mercury | EPA 245.5 (Soil) | ISO |
| Total Mercury | EPA 245.5 (Waste) | NR |
| Total Metals | EPA 200.8 (Soil) | ISO |



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Total Metals

Total Metals

Total Metals

EPA 200.8 (Waste)

EPA 6010 (Soil)

EPA 6010 (Waste)

ISO

ISO

ISO



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Report Narrative for Work Order: E161408

TW 05/13/16 Soil samples associated with this project could not be dried. Soil results will be reported on a wet weight basis.

Sample Disposal Policy

Because of the laboratory's limited space for long term sample storage, our policy is to dispose of samples on a periodic schedule. Please note that within 60 days of this memo, the original samples and all sample extracts and/or sample digestates will be disposed of in accordance with applicable regulations. The 60-day sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time if you have a special project need. If you wish for the laboratory to hold samples beyond the 60-day period, please contact our Sample Control Coordinator by e-mail at R4SampleCustody@epa.gov, and provide a reason for holding samples beyond 60 days

cc: Nardina Turner



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

SAMPLES INCLUDED IN THIS REPORT

Project: 16-0333, Ortek, Inc.

| Sample ID | Laboratory ID | Matrix | Date Collected | Date Received |
|-------------|---------------|--------|----------------|---------------|
| 3301601M | E161408-01 | Soil | 3/30/16 13:40 | 4/1/16 11:10 |
| 3301602M | E161408-02 | Soil | 3/30/16 14:02 | 4/1/16 11:10 |
| 3301603M | E161408-03 | Waste | 3/30/16 14:20 | 4/1/16 11:10 |
| 3301604M | E161408-04 | Waste | 3/30/16 14:30 | 4/1/16 11:10 |
| 3301605M | E161408-05 | Waste | 3/30/16 14:40 | 4/1/16 11:10 |
| 3301606M | E161408-06 | Soil | 3/30/16 15:21 | 4/1/16 11:10 |
| 3301607M | E161408-07 | Soil | 3/30/16 15:36 | 4/1/16 11:10 |
| 3301608M | E161408-08 | Soil | 3/30/16 15:47 | 4/1/16 11:10 |
| 3301609M | E161408-09 | Soil | 3/30/16 16:04 | 4/1/16 11:10 |
| 3301610M | E161408-10 | Soil | 3/30/16 16:14 | 4/1/16 11:10 |
| 3301610MDUP | E161408-11 | Soil | 3/30/16 16:29 | 4/1/16 11:10 |
| 3301604ML | E161408-12 | Waste | 3/30/16 14:30 | 4/1/16 11:10 |
| 3301605ML | E161408-13 | Waste | 3/30/16 14:49 | 4/1/16 11:10 |



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D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

DATA QUALIFIER DEFINITIONS

| | |
|------|---|
| U | The analyte was not detected at or above the reporting limit. |
| H-6 | Sample originally analyzed within holding time; some QC requirements not met. The reported result is from a second analysis performed for confirmation which occurred after the holding time expired. |
| J | The identification of the analyte is acceptable; the reported value is an estimate. |
| QC-2 | Analyte concentration high in continuing calibration verification standard |
| QM-1 | Matrix Spike Recovery less than method control limits |
| QM-2 | Matrix Spike Recovery greater than method control limits |
| QM-3 | Matrix Spike Precision outside method control limits |

ACRONYMS AND ABBREVIATIONS

| | |
|-----|---|
| CAS | Chemical Abstracts Service Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory. |
| MDL | Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero. |
| MRL | Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments. |
| TIC | Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported. |

ACCREDITATIONS:

| | |
|-----|--|
| ISO | The test, if analyzed after June 26, 2012, is accredited under the EPA Region 4 ASB's ISO/IEC 17025 accreditation issued by ANSI-ASQ National Accreditation Board/ACLASS. Refer to certificate and scope of accreditation AT-1691. |
| NR | The EPA Region 4 Laboratory has not requested accreditation for this test. |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301601M

Lab ID: E161408-01

Station ID: SOIL SOUTH OF TANK FARM

Matrix: Soil

Date Collected: 3/30/16 13:40

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|------------|------------|---------|------------------------|-------|-------|-----------------|------------------|-----------|
| 7439-97-6 | Mercury | 0.28 | | mg/kg | 0.050 | 4/20/16 8:30 | 4/20/16 13:22 | EPA 245.5 |
| 7429-90-5 | Aluminum | 4700 | J, QM-1 | mg/kg | 99 | 4/21/16 8:27 | 4/27/16 15:40 | EPA 6010 |
| 7440-36-0 | Antimony | 9.4 | J, QM-1 | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 13:37 | EPA 200.8 |
| 7440-38-2 | Arsenic | 6.4 | | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 13:37 | EPA 200.8 |
| 7440-39-3 | Barium | 230 | J, QM-3, QM-1 | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:40 | EPA 6010 |
| 7440-41-7 | Beryllium | 3.0 | U | mg/kg | 3.0 | 4/21/16 8:27 | 4/27/16 15:40 | EPA 6010 |
| 7440-43-9 | Cadmium | 2.3 | | mg/kg | 0.099 | 4/21/16 8:29 | 5/02/16 13:37 | EPA 200.8 |
| 7440-70-2 | Calcium | 55000 | | mg/kg | 250 | 4/21/16 8:27 | 4/27/16 15:40 | EPA 6010 |
| 7440-47-3 | Chromium | 76 | J, QM-2, QM-1, QM-3 | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:40 | EPA 6010 |
| 7440-48-4 | Cobalt | 29 | J, QM-1 | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:40 | EPA 6010 |
| 7440-50-8 | Copper | 550 | | mg/kg | 9.9 | 4/21/16 8:27 | 4/27/16 15:40 | EPA 6010 |
| 7439-89-6 | Iron | 19000 | | mg/kg | 99 | 4/21/16 8:27 | 4/27/16 15:40 | EPA 6010 |
| 7439-92-1 | Lead | 760 | | mg/kg | 4.9 | 4/21/16 8:29 | 5/02/16 13:41 | EPA 200.8 |
| 7439-95-4 | Magnesium | 30000 | | mg/kg | 250 | 4/21/16 8:27 | 4/27/16 15:40 | EPA 6010 |
| 7439-96-5 | Manganese | 380 | | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:40 | EPA 6010 |
| 7439-98-7 | Molybdenum | 29 | J, QM-1, QM-3 | mg/kg | 9.9 | 4/21/16 8:27 | 4/27/16 15:40 | EPA 6010 |
| 7440-02-0 | Nickel | 100 | J, QM-1 | mg/kg | 9.9 | 4/21/16 8:27 | 4/27/16 15:40 | EPA 6010 |
| 7440-09-7 | Potassium | 990 | U, J, QM-1 | mg/kg | 990 | 4/21/16 8:27 | 4/27/16 15:40 | EPA 6010 |
| 7782-49-2 | Selenium | 0.39 | U | mg/kg | 0.39 | 4/21/16 8:29 | 5/02/16 13:37 | EPA 200.8 |
| 7440-22-4 | Silver | 4.9 | U | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:40 | EPA 6010 |
| 7440-23-5 | Sodium | 990 | U | mg/kg | 990 | 4/21/16 8:27 | 4/27/16 15:40 | EPA 6010 |
| 7440-24-6 | Strontium | 49 | J, QM-1 | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:40 | EPA 6010 |
| 7440-28-0 | Thallium | 0.20 | U | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 13:37 | EPA 200.8 |
| 7440-31-5 | Tin | 18 | J, QM-2, QM-1, QM-3 | mg/kg | 15 | 4/21/16 8:27 | 4/27/16 15:40 | EPA 6010 |
| 7440-32-6 | Titanium | 62 | J, QM-1, QM-3 | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:40 | EPA 6010 |
| 7440-62-2 | Vanadium | 14 | J, QM-1 | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:40 | EPA 6010 |
| 7440-65-5 | Yttrium | 3.8 | | mg/kg | 3.0 | 4/21/16 8:27 | 4/27/16 15:40 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301601M

Lab ID: E161408-01

Station ID: SOIL SOUTH OF TANK FARM

Matrix: Soil

Date Collected: 3/30/16 13:40

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|---------------|---------|---------|------------|-------|-----|-----------------|------------------|----------|
| 7440-66-6 | Zinc | 990 | | mg/kg | 9.9 | 4/21/16 8:27 | 4/27/16 15:40 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

TCLP Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301601M

Lab ID: E161408-01

Station ID: SOIL SOUTH OF TANK FARM

Matrix: Soil

Date Collected: 3/30/16 13:40

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|---------------|----------|---------|------------|-------|---------|------------------|------------------|-----------|
| 7440-38-2 | Arsenic | 0.020 | U | mg/L | 0.020 | 4/08/16 14:24 | 5/03/16 12:26 | EPA 200.8 |
| 7440-39-3 | Barium | 1.3 | | mg/L | 0.020 | 4/08/16 14:18 | 4/12/16 15:07 | EPA 6010 |
| 7440-43-9 | Cadmium | 0.029 | | mg/L | 0.010 | 4/08/16 14:24 | 5/03/16 12:26 | EPA 200.8 |
| 7440-47-3 | Chromium | 0.020 | U | mg/L | 0.020 | 4/08/16 14:18 | 4/12/16 15:07 | EPA 6010 |
| 7439-92-1 | Lead | 0.37 | | mg/L | 0.020 | 4/08/16 14:24 | 5/03/16 12:26 | EPA 200.8 |
| 7439-97-6 | Mercury | 0.00010 | U, H-6 | mg/L | 0.00010 | 5/05/16 10:58 | 5/06/16 22:07 | EPA 245.1 |
| 7782-49-2 | Selenium | 0.040 | U | mg/L | 0.040 | 4/08/16 14:24 | 5/03/16 12:26 | EPA 200.8 |
| 7440-22-4 | Silver | 0.020 | U | mg/L | 0.020 | 4/08/16 14:18 | 4/12/16 15:07 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Physical Properties

Project: 16-0333, Ortek, Inc.

Sample ID: 3301601M

Lab ID: E161408-01

Station ID: SOIL SOUTH OF TANK FARM

Matrix: Soil

Date Collected: 3/30/16 13:40

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|---------------|---|------------|------------|-------|-----|------------------|-----------------|-----------|
| E1642941 | % Solids: Samples still oily after drying used | Wet sample | | | 0.0 | 4/15/16 12:33 | 4/19/16 9:44 | EPA 200.2 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301602M

Lab ID: E161408-02

Station ID: SOIL SOUTH OF TANK FARM

Matrix: Soil

Date Collected: 3/30/16 14:02

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|------------|------------|---------|------------|-------|-------|-----------------|------------------|-----------|
| 7439-97-6 | Mercury | 0.17 | | mg/kg | 0.047 | 4/20/16 8:30 | 4/20/16 13:22 | EPA 245.5 |
| 7429-90-5 | Aluminum | 3800 | | mg/kg | 98 | 4/21/16 8:27 | 4/27/16 15:48 | EPA 6010 |
| 7440-36-0 | Antimony | 4.1 | | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 13:53 | EPA 200.8 |
| 7440-38-2 | Arsenic | 6.3 | | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 13:53 | EPA 200.8 |
| 7440-39-3 | Barium | 230 | | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:48 | EPA 6010 |
| 7440-41-7 | Beryllium | 2.9 U | | mg/kg | 2.9 | 4/21/16 8:27 | 4/27/16 15:48 | EPA 6010 |
| 7440-43-9 | Cadmium | 1.0 | | mg/kg | 0.098 | 4/21/16 8:29 | 5/02/16 13:53 | EPA 200.8 |
| 7440-70-2 | Calcium | 56000 | | mg/kg | 250 | 4/21/16 8:27 | 4/27/16 15:48 | EPA 6010 |
| 7440-47-3 | Chromium | 130 | | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:48 | EPA 6010 |
| 7440-48-4 | Cobalt | 28 | | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:48 | EPA 6010 |
| 7440-50-8 | Copper | 470 | | mg/kg | 9.8 | 4/21/16 8:27 | 4/27/16 15:48 | EPA 6010 |
| 7439-89-6 | Iron | 44000 | | mg/kg | 98 | 4/21/16 8:27 | 4/27/16 15:48 | EPA 6010 |
| 7439-92-1 | Lead | 610 | | mg/kg | 4.9 | 4/21/16 8:29 | 5/02/16 13:53 | EPA 200.8 |
| 7439-95-4 | Magnesium | 28000 | | mg/kg | 250 | 4/21/16 8:27 | 4/27/16 15:48 | EPA 6010 |
| 7439-96-5 | Manganese | 520 | | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:48 | EPA 6010 |
| 7439-98-7 | Molybdenum | 22 | | mg/kg | 9.8 | 4/21/16 8:27 | 4/27/16 15:48 | EPA 6010 |
| 7440-02-0 | Nickel | 140 | | mg/kg | 9.8 | 4/21/16 8:27 | 4/27/16 15:48 | EPA 6010 |
| 7440-09-7 | Potassium | 980 U | | mg/kg | 980 | 4/21/16 8:27 | 4/27/16 15:48 | EPA 6010 |
| 7782-49-2 | Selenium | 0.39 U | | mg/kg | 0.39 | 4/21/16 8:29 | 5/02/16 13:53 | EPA 200.8 |
| 7440-22-4 | Silver | 4.9 U | | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:48 | EPA 6010 |
| 7440-23-5 | Sodium | 980 U | | mg/kg | 980 | 4/21/16 8:27 | 4/27/16 15:48 | EPA 6010 |
| 7440-24-6 | Strontium | 71 | | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:48 | EPA 6010 |
| 7440-28-0 | Thallium | 0.20 U | | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 13:53 | EPA 200.8 |
| 7440-31-5 | Tin | 16 | | mg/kg | 15 | 4/21/16 8:27 | 4/27/16 15:48 | EPA 6010 |
| 7440-32-6 | Titanium | 80 | | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:48 | EPA 6010 |
| 7440-62-2 | Vanadium | 27 | | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:48 | EPA 6010 |
| 7440-65-5 | Yttrium | 2.9 U | | mg/kg | 2.9 | 4/21/16 8:27 | 4/27/16 15:48 | EPA 6010 |
| 7440-66-6 | Zinc | 980 | | mg/kg | 9.8 | 4/21/16 8:27 | 4/27/16 15:48 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

TCLP Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301602M

Lab ID: E161408-02

Station ID: SOIL SOUTH OF TANK FARM

Matrix: Soil

Date Collected: 3/30/16 14:02

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|------------|----------|---------|------------|-------|---------|------------------|------------------|-----------|
| 7440-38-2 | Arsenic | 0.020 | U | mg/L | 0.020 | 4/08/16 14:24 | 5/03/16 12:38 | EPA 200.8 |
| 7440-39-3 | Barium | 0.73 | | mg/L | 0.020 | 4/08/16 14:18 | 4/12/16 15:18 | EPA 6010 |
| 7440-43-9 | Cadmium | 0.010 | U | mg/L | 0.010 | 4/08/16 14:24 | 5/03/16 12:38 | EPA 200.8 |
| 7440-47-3 | Chromium | 0.020 | U | mg/L | 0.020 | 4/08/16 14:18 | 4/12/16 15:18 | EPA 6010 |
| 7439-92-1 | Lead | 0.20 | | mg/L | 0.020 | 4/08/16 14:24 | 5/03/16 12:38 | EPA 200.8 |
| 7439-97-6 | Mercury | 0.00010 | U, H-6 | mg/L | 0.00010 | 5/05/16 10:58 | 5/06/16 22:07 | EPA 245.1 |
| 7782-49-2 | Selenium | 0.040 | U | mg/L | 0.040 | 4/08/16 14:24 | 5/03/16 12:38 | EPA 200.8 |
| 7440-22-4 | Silver | 0.020 | U | mg/L | 0.020 | 4/08/16 14:18 | 4/12/16 15:18 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Physical Properties

Project: 16-0333, Ortek, Inc.

Sample ID: 3301602M

Lab ID: E161408-02

Station ID: SOIL SOUTH OF TANK FARM

Matrix: Soil

Date Collected: 3/30/16 14:02

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|---------------|--|------------|------------|-------|-----|------------------|-----------------|-----------|
| E1642941 | % Solids: Samples still oily after drying. used | Wet sample | | | 0.0 | 4/15/16 12:33 | 4/19/16 9:44 | EPA 200.2 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301603M

Lab ID: E161408-03

Station ID: RAIL SUMP SLUDGE

Matrix: Waste

Date Collected: 3/30/16 14:20

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|------------|------------|-------------|------------|-------|-------|-----------------|------------------|-----------|
| 7439-97-6 | Mercury | 0.18 | | mg/kg | 0.047 | 4/18/16 8:31 | 4/18/16 12:58 | EPA 245.5 |
| 7429-90-5 | Aluminum | 4000 | | mg/kg | 50 | 4/21/16 8:31 | 4/28/16 11:57 | EPA 6010 |
| 7440-36-0 | Antimony | 1.8 | | mg/kg | 0.20 | 4/21/16 8:31 | 5/02/16 15:27 | EPA 200.8 |
| 7440-38-2 | Arsenic | 5.9 | | mg/kg | 0.20 | 4/21/16 8:31 | 5/02/16 15:27 | EPA 200.8 |
| 7440-39-3 | Barium | 88 | | mg/kg | 2.5 | 4/21/16 8:31 | 4/28/16 11:57 | EPA 6010 |
| 7440-41-7 | Beryllium | 1.5 U | | mg/kg | 1.5 | 4/21/16 8:31 | 4/28/16 11:57 | EPA 6010 |
| 7440-43-9 | Cadmium | 0.62 | | mg/kg | 0.099 | 4/21/16 8:31 | 5/02/16 15:27 | EPA 200.8 |
| 7440-70-2 | Calcium | 23000 | | mg/kg | 120 | 4/21/16 8:31 | 4/28/16 11:57 | EPA 6010 |
| 7440-47-3 | Chromium | 16 | | mg/kg | 2.5 | 4/21/16 8:31 | 4/28/16 11:57 | EPA 6010 |
| 7440-48-4 | Cobalt | 3.9 | | mg/kg | 2.5 | 4/21/16 8:31 | 4/28/16 11:57 | EPA 6010 |
| 7440-50-8 | Copper | 68 | | mg/kg | 5.0 | 4/21/16 8:31 | 4/28/16 11:57 | EPA 6010 |
| 7439-89-6 | Iron | 9800 | | mg/kg | 50 | 4/21/16 8:31 | 4/28/16 11:57 | EPA 6010 |
| 7439-92-1 | Lead | 490 J, QC-2 | | mg/kg | 5.0 | 4/21/16 8:31 | 5/02/16 15:31 | EPA 200.8 |
| 7439-95-4 | Magnesium | 12000 | | mg/kg | 120 | 4/21/16 8:31 | 4/28/16 11:57 | EPA 6010 |
| 7439-96-5 | Manganese | 220 | | mg/kg | 2.5 | 4/21/16 8:31 | 4/28/16 11:57 | EPA 6010 |
| 7439-98-7 | Molybdenum | 9.4 | | mg/kg | 5.0 | 4/21/16 8:31 | 4/28/16 11:57 | EPA 6010 |
| 7440-02-0 | Nickel | 11 | | mg/kg | 5.0 | 4/21/16 8:31 | 4/28/16 11:57 | EPA 6010 |
| 7440-09-7 | Potassium | 550 | | mg/kg | 500 | 4/21/16 8:31 | 4/28/16 11:57 | EPA 6010 |
| 7782-49-2 | Selenium | 0.40 U | | mg/kg | 0.40 | 4/21/16 8:31 | 5/02/16 15:27 | EPA 200.8 |
| 7440-22-4 | Silver | 2.5 U | | mg/kg | 2.5 | 4/21/16 8:31 | 4/28/16 11:57 | EPA 6010 |
| 7440-23-5 | Sodium | 500 U | | mg/kg | 500 | 4/21/16 8:31 | 4/28/16 11:57 | EPA 6010 |
| 7440-24-6 | Strontium | 26 | | mg/kg | 2.5 | 4/21/16 8:31 | 4/28/16 11:57 | EPA 6010 |
| 7440-28-0 | Thallium | 0.20 U | | mg/kg | 0.20 | 4/21/16 8:31 | 5/02/16 15:27 | EPA 200.8 |
| 7440-31-5 | Tin | 7.4 U | | mg/kg | 7.4 | 4/21/16 8:31 | 4/28/16 11:57 | EPA 6010 |
| 7440-32-6 | Titanium | 44 | | mg/kg | 2.5 | 4/21/16 8:31 | 4/28/16 11:57 | EPA 6010 |
| 7440-62-2 | Vanadium | 9.3 | | mg/kg | 2.5 | 4/21/16 8:31 | 4/28/16 11:57 | EPA 6010 |
| 7440-65-5 | Yttrium | 2.9 | | mg/kg | 1.5 | 4/21/16 8:31 | 4/28/16 11:57 | EPA 6010 |
| 7440-66-6 | Zinc | 310 | | mg/kg | 5.0 | 4/21/16 8:31 | 4/28/16 11:57 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

TCLP Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301603M

Lab ID: E161408-03

Station ID: RAIL SUMP SLUDGE

Matrix: Waste

Date Collected: 3/30/16 14:20

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|---------------|----------|---------|------------|-------|---------|------------------|------------------|-----------|
| 7440-38-2 | Arsenic | 0.020 | U | mg/L | 0.020 | 4/28/16 13:47 | 5/03/16 13:35 | EPA 200.8 |
| 7440-39-3 | Barium | 0.45 | | mg/L | 0.020 | 4/28/16 13:19 | 5/04/16 12:33 | EPA 6010 |
| 7440-43-9 | Cadmium | 0.010 | U | mg/L | 0.010 | 4/28/16 13:47 | 5/03/16 13:35 | EPA 200.8 |
| 7440-47-3 | Chromium | 0.020 | U | mg/L | 0.020 | 4/28/16 13:19 | 5/04/16 12:33 | EPA 6010 |
| 7439-92-1 | Lead | 0.20 | | mg/L | 0.020 | 4/28/16 13:47 | 5/03/16 13:35 | EPA 200.8 |
| 7439-97-6 | Mercury | 0.00010 | U | mg/L | 0.00010 | 5/05/16 10:58 | 5/06/16 22:07 | EPA 245.1 |
| 7782-49-2 | Selenium | 0.040 | U | mg/L | 0.040 | 4/28/16 13:47 | 5/03/16 13:35 | EPA 200.8 |
| 7440-22-4 | Silver | 0.020 | U | mg/L | 0.020 | 4/28/16 13:19 | 5/04/16 12:33 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301604M

Lab ID: E161408-04

Station ID: SOUTH ROLL-OFF

Matrix: Waste

Date Collected: 3/30/16 14:30

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|------------|------------|---------|------------|-------|-------|-----------------|------------------|-----------|
| 7439-97-6 | Mercury | 1.6 | | mg/kg | 0.045 | 4/18/16 8:53 | 4/18/16 12:58 | EPA 245.5 |
| 7429-90-5 | Aluminum | 6700 | | mg/kg | 49 | 4/21/16 8:31 | 4/28/16 12:00 | EPA 6010 |
| 7440-36-0 | Antimony | 11 | | mg/kg | 0.20 | 4/21/16 8:33 | 5/02/16 15:35 | EPA 200.8 |
| 7440-38-2 | Arsenic | 11 | | mg/kg | 0.20 | 4/21/16 8:33 | 5/02/16 15:35 | EPA 200.8 |
| 7440-39-3 | Barium | 390 | | mg/kg | 2.4 | 4/21/16 8:31 | 4/28/16 12:00 | EPA 6010 |
| 7440-41-7 | Beryllium | 1.5 U | | mg/kg | 1.5 | 4/21/16 8:31 | 4/28/16 12:00 | EPA 6010 |
| 7440-43-9 | Cadmium | 32 | | mg/kg | 0.24 | 4/21/16 8:33 | 5/02/16 15:43 | EPA 200.8 |
| 7440-70-2 | Calcium | 23000 | | mg/kg | 120 | 4/21/16 8:31 | 4/28/16 12:00 | EPA 6010 |
| 7440-47-3 | Chromium | 310 | | mg/kg | 2.4 | 4/21/16 8:31 | 4/28/16 12:00 | EPA 6010 |
| 7440-48-4 | Cobalt | 25 | | mg/kg | 2.4 | 4/21/16 8:31 | 4/28/16 12:00 | EPA 6010 |
| 7440-50-8 | Copper | 1200 | | mg/kg | 9.8 | 4/21/16 8:31 | 4/28/16 17:43 | EPA 6010 |
| 7439-89-6 | Iron | 40000 | | mg/kg | 49 | 4/21/16 8:31 | 4/28/16 12:00 | EPA 6010 |
| 7439-92-1 | Lead | 3200 | J, QC-2 | mg/kg | 24 | 4/21/16 8:33 | 5/02/16 15:51 | EPA 200.8 |
| 7439-95-4 | Magnesium | 4700 | | mg/kg | 120 | 4/21/16 8:31 | 4/28/16 12:00 | EPA 6010 |
| 7439-96-5 | Manganese | 430 | | mg/kg | 2.4 | 4/21/16 8:31 | 4/28/16 12:00 | EPA 6010 |
| 7439-98-7 | Molybdenum | 56 | | mg/kg | 4.9 | 4/21/16 8:31 | 4/28/16 12:00 | EPA 6010 |
| 7440-02-0 | Nickel | 250 | | mg/kg | 4.9 | 4/21/16 8:31 | 4/28/16 12:00 | EPA 6010 |
| 7440-09-7 | Potassium | 710 | | mg/kg | 490 | 4/21/16 8:31 | 4/28/16 12:00 | EPA 6010 |
| 7782-49-2 | Selenium | 0.39 U | | mg/kg | 0.39 | 4/21/16 8:33 | 5/02/16 15:35 | EPA 200.8 |
| 7440-22-4 | Silver | 14 | | mg/kg | 2.4 | 4/21/16 8:31 | 4/28/16 12:00 | EPA 6010 |
| 7440-23-5 | Sodium | 2000 | | mg/kg | 490 | 4/21/16 8:31 | 4/28/16 12:00 | EPA 6010 |
| 7440-24-6 | Strontium | 92 | | mg/kg | 2.4 | 4/21/16 8:31 | 4/28/16 12:00 | EPA 6010 |
| 7440-28-0 | Thallium | 0.30 | | mg/kg | 0.20 | 4/21/16 8:33 | 5/02/16 15:35 | EPA 200.8 |
| 7440-31-5 | Tin | 340 | | mg/kg | 7.3 | 4/21/16 8:31 | 4/28/16 12:00 | EPA 6010 |
| 7440-32-6 | Titanium | 47 | | mg/kg | 2.4 | 4/21/16 8:31 | 4/28/16 12:00 | EPA 6010 |
| 7440-62-2 | Vanadium | 21 | | mg/kg | 2.4 | 4/21/16 8:31 | 4/28/16 12:00 | EPA 6010 |
| 7440-65-5 | Yttrium | 3.5 | | mg/kg | 1.5 | 4/21/16 8:31 | 4/28/16 12:00 | EPA 6010 |
| 7440-66-6 | Zinc | 3600 | | mg/kg | 4.9 | 4/21/16 8:31 | 4/28/16 12:00 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

TCLP Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301604M

Lab ID: E161408-04

Station ID: SOUTH ROLL-OFF

Matrix: Waste

Date Collected: 3/30/16 14:30

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|------------|----------|---------|------------|-------|---------|------------------|------------------|-----------|
| 7440-38-2 | Arsenic | 0.020 | U | mg/L | 0.020 | 4/28/16 13:47 | 5/03/16 13:55 | EPA 200.8 |
| 7440-39-3 | Barium | 0.31 | | mg/L | 0.020 | 4/28/16 13:19 | 5/04/16 12:42 | EPA 6010 |
| 7440-43-9 | Cadmium | 0.010 | U | mg/L | 0.010 | 4/28/16 13:47 | 5/03/16 13:55 | EPA 200.8 |
| 7440-47-3 | Chromium | 0.020 | U | mg/L | 0.020 | 4/28/16 13:19 | 5/04/16 12:42 | EPA 6010 |
| 7439-92-1 | Lead | 0.17 | | mg/L | 0.020 | 4/28/16 13:47 | 5/03/16 13:55 | EPA 200.8 |
| 7439-97-6 | Mercury | 0.00015 | | mg/L | 0.00010 | 5/05/16 10:58 | 5/06/16 22:07 | EPA 245.1 |
| 7782-49-2 | Selenium | 0.040 | U | mg/L | 0.040 | 4/28/16 13:47 | 5/03/16 13:55 | EPA 200.8 |
| 7440-22-4 | Silver | 0.020 | U | mg/L | 0.020 | 4/28/16 13:19 | 5/04/16 12:42 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301605M

Lab ID: E161408-05

Station ID: NORTH ROLL-OFF

Matrix: Waste

Date Collected: 3/30/16 14:40

| CAS Number | Analyte | Results Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|------------|------------|--------------------|-------|-------|-----------------|------------------|-----------|
| 7439-97-6 | Mercury | 1.6 | mg/kg | 0.046 | 4/18/16 8:53 | 4/18/16 12:58 | EPA 245.5 |
| 7429-90-5 | Aluminum | 5400 | mg/kg | 98 | 4/21/16 8:31 | 4/28/16 12:05 | EPA 6010 |
| 7440-36-0 | Antimony | 10 J, QM-1 | mg/kg | 0.49 | 4/21/16 8:33 | 5/02/16 16:11 | EPA 200.8 |
| 7440-38-2 | Arsenic | 8.8 | mg/kg | 0.20 | 4/21/16 8:33 | 5/02/16 16:03 | EPA 200.8 |
| 7440-39-3 | Barium | 280 J, QM-1, QM-2 | mg/kg | 4.9 | 4/21/16 8:31 | 4/28/16 12:05 | EPA 6010 |
| 7440-41-7 | Beryllium | 2.9 U | mg/kg | 2.9 | 4/21/16 8:31 | 4/28/16 12:05 | EPA 6010 |
| 7440-43-9 | Cadmium | 20 J, QM-1 | mg/kg | 0.24 | 4/21/16 8:33 | 5/02/16 16:11 | EPA 200.8 |
| 7440-70-2 | Calcium | 21000 | mg/kg | 240 | 4/21/16 8:31 | 4/28/16 12:05 | EPA 6010 |
| 7440-47-3 | Chromium | 200 J, QM-2 | mg/kg | 4.9 | 4/21/16 8:31 | 4/28/16 12:05 | EPA 6010 |
| 7440-48-4 | Cobalt | 30 | mg/kg | 4.9 | 4/21/16 8:31 | 4/28/16 12:05 | EPA 6010 |
| 7440-50-8 | Copper | 1000 | mg/kg | 9.8 | 4/21/16 8:31 | 4/28/16 12:05 | EPA 6010 |
| 7439-89-6 | Iron | 33000 | mg/kg | 98 | 4/21/16 8:31 | 4/28/16 12:05 | EPA 6010 |
| 7439-92-1 | Lead | 3600 J, QM-3, QC-2 | mg/kg | 24 | 4/21/16 8:33 | 5/02/16 16:19 | EPA 200.8 |
| 7439-95-4 | Magnesium | 4600 J, QM-2 | mg/kg | 240 | 4/21/16 8:31 | 4/28/16 12:05 | EPA 6010 |
| 7439-96-5 | Manganese | 390 | mg/kg | 4.9 | 4/21/16 8:31 | 4/28/16 12:05 | EPA 6010 |
| 7439-98-7 | Molybdenum | 41 J, QM-2 | mg/kg | 9.8 | 4/21/16 8:31 | 4/28/16 12:05 | EPA 6010 |
| 7440-02-0 | Nickel | 250 J, QM-1 | mg/kg | 9.8 | 4/21/16 8:31 | 4/28/16 12:05 | EPA 6010 |
| 7440-09-7 | Potassium | 980 U | mg/kg | 980 | 4/21/16 8:31 | 4/28/16 12:05 | EPA 6010 |
| 7782-49-2 | Selenium | 0.39 U | mg/kg | 0.39 | 4/21/16 8:33 | 5/02/16 16:03 | EPA 200.8 |
| 7440-22-4 | Silver | 32 J, QM-1, QM-3 | mg/kg | 4.9 | 4/21/16 8:31 | 4/28/16 12:05 | EPA 6010 |
| 7440-23-5 | Sodium | 1500 J, QM-2 | mg/kg | 980 | 4/21/16 8:31 | 4/28/16 12:05 | EPA 6010 |
| 7440-24-6 | Strontium | 75 | mg/kg | 4.9 | 4/21/16 8:31 | 4/28/16 12:05 | EPA 6010 |
| 7440-28-0 | Thallium | 0.30 | mg/kg | 0.20 | 4/21/16 8:33 | 5/02/16 16:03 | EPA 200.8 |
| 7440-31-5 | Tin | 810 J, QM-1, QM-3 | mg/kg | 15 | 4/21/16 8:31 | 4/28/16 12:05 | EPA 6010 |
| 7440-32-6 | Titanium | 45 | mg/kg | 4.9 | 4/21/16 8:31 | 4/28/16 12:05 | EPA 6010 |
| 7440-62-2 | Vanadium | 19 J, QM-3, QM-2 | mg/kg | 4.9 | 4/21/16 8:31 | 4/28/16 12:05 | EPA 6010 |
| 7440-65-5 | Yttrium | 3.2 | mg/kg | 2.9 | 4/21/16 8:31 | 4/28/16 12:05 | EPA 6010 |
| 7440-66-6 | Zinc | 3100 | mg/kg | 9.8 | 4/21/16 8:31 | 4/28/16 12:05 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

TCLP Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301605M

Lab ID: E161408-05

Station ID: NORTH ROLL-OFF

Matrix: Waste

Date Collected: 3/30/16 14:40

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|---------------|----------|---------|------------|-------|---------|------------------|------------------|-----------|
| 7440-38-2 | Arsenic | 0.020 | U | mg/L | 0.020 | 4/28/16 13:47 | 5/03/16 13:59 | EPA 200.8 |
| 7440-39-3 | Barium | 0.25 | | mg/L | 0.020 | 4/28/16 13:19 | 5/04/16 12:45 | EPA 6010 |
| 7440-43-9 | Cadmium | 0.010 | U | mg/L | 0.010 | 4/28/16 13:47 | 5/03/16 13:59 | EPA 200.8 |
| 7440-47-3 | Chromium | 0.020 | U | mg/L | 0.020 | 4/28/16 13:19 | 5/04/16 12:45 | EPA 6010 |
| 7439-92-1 | Lead | 0.029 | | mg/L | 0.020 | 4/28/16 13:47 | 5/03/16 13:59 | EPA 200.8 |
| 7439-97-6 | Mercury | 0.00010 | U | mg/L | 0.00010 | 5/05/16 10:58 | 5/06/16 22:07 | EPA 245.1 |
| 7782-49-2 | Selenium | 0.040 | U | mg/L | 0.040 | 4/28/16 13:47 | 5/03/16 13:59 | EPA 200.8 |
| 7440-22-4 | Silver | 0.020 | U | mg/L | 0.020 | 4/28/16 13:19 | 5/04/16 12:45 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301606M

Lab ID: E161408-06

Station ID: SOUTH-WEST CORNER

Matrix: Soil

Date Collected: 3/30/16 15:21

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|------------|------------|---------|------------|-------|-------|-----------------|------------------|-----------|
| 7439-97-6 | Mercury | 0.23 | | mg/kg | 0.049 | 4/20/16 8:30 | 4/27/16 13:22 | EPA 245.5 |
| 7429-90-5 | Aluminum | 3700 | | mg/kg | 150 | 4/21/16 8:27 | 4/27/16 15:50 | EPA 6010 |
| 7440-36-0 | Antimony | 15 | | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 14:09 | EPA 200.8 |
| 7440-38-2 | Arsenic | 6.3 | | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 14:09 | EPA 200.8 |
| 7440-39-3 | Barium | 270 | | mg/kg | 7.4 | 4/21/16 8:27 | 4/27/16 15:50 | EPA 6010 |
| 7440-41-7 | Beryllium | 4.4 U | | mg/kg | 4.4 | 4/21/16 8:27 | 4/27/16 15:50 | EPA 6010 |
| 7440-43-9 | Cadmium | 4.3 | | mg/kg | 0.098 | 4/21/16 8:29 | 5/02/16 14:09 | EPA 200.8 |
| 7440-70-2 | Calcium | 47000 | | mg/kg | 370 | 4/21/16 8:27 | 4/27/16 15:50 | EPA 6010 |
| 7440-47-3 | Chromium | 110 | | mg/kg | 7.4 | 4/21/16 8:27 | 4/27/16 15:50 | EPA 6010 |
| 7440-48-4 | Cobalt | 38 | | mg/kg | 7.4 | 4/21/16 8:27 | 4/27/16 15:50 | EPA 6010 |
| 7440-50-8 | Copper | 1900 | | mg/kg | 15 | 4/21/16 8:27 | 4/27/16 15:50 | EPA 6010 |
| 7439-89-6 | Iron | 29000 | | mg/kg | 150 | 4/21/16 8:27 | 4/27/16 15:50 | EPA 6010 |
| 7439-92-1 | Lead | 1300 | | mg/kg | 9.8 | 4/21/16 8:29 | 5/02/16 14:13 | EPA 200.8 |
| 7439-95-4 | Magnesium | 25000 | | mg/kg | 370 | 4/21/16 8:27 | 4/27/16 15:50 | EPA 6010 |
| 7439-96-5 | Manganese | 400 | | mg/kg | 7.4 | 4/21/16 8:27 | 4/27/16 15:50 | EPA 6010 |
| 7439-98-7 | Molybdenum | 40 | | mg/kg | 15 | 4/21/16 8:27 | 4/27/16 15:50 | EPA 6010 |
| 7440-02-0 | Nickel | 160 | | mg/kg | 15 | 4/21/16 8:27 | 4/27/16 15:50 | EPA 6010 |
| 7440-09-7 | Potassium | 1500 U | | mg/kg | 1500 | 4/21/16 8:27 | 4/27/16 15:50 | EPA 6010 |
| 7782-49-2 | Selenium | 0.39 U | | mg/kg | 0.39 | 4/21/16 8:29 | 5/02/16 14:09 | EPA 200.8 |
| 7440-22-4 | Silver | 7.4 U | | mg/kg | 7.4 | 4/21/16 8:27 | 4/27/16 15:50 | EPA 6010 |
| 7440-23-5 | Sodium | 1500 U | | mg/kg | 1500 | 4/21/16 8:27 | 4/27/16 15:50 | EPA 6010 |
| 7440-24-6 | Strontium | 49 | | mg/kg | 7.4 | 4/21/16 8:27 | 4/27/16 15:50 | EPA 6010 |
| 7440-28-0 | Thallium | 0.20 U | | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 14:09 | EPA 200.8 |
| 7440-31-5 | Tin | 66 | | mg/kg | 22 | 4/21/16 8:27 | 4/27/16 15:50 | EPA 6010 |
| 7440-32-6 | Titanium | 65 | | mg/kg | 7.4 | 4/21/16 8:27 | 4/27/16 15:50 | EPA 6010 |
| 7440-62-2 | Vanadium | 15 | | mg/kg | 7.4 | 4/21/16 8:27 | 4/27/16 15:50 | EPA 6010 |
| 7440-65-5 | Yttrium | 4.4 U | | mg/kg | 4.4 | 4/21/16 8:27 | 4/27/16 15:50 | EPA 6010 |
| 7440-66-6 | Zinc | 1600 | | mg/kg | 15 | 4/21/16 8:27 | 4/27/16 15:50 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

TCLP Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301606M

Lab ID: E161408-06

Station ID: SOUTH-WEST CORNER

Matrix: Soil

Date Collected: 3/30/16 15:21

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|---------------|----------|---------|------------|-------|---------|------------------|------------------|-----------|
| 7440-38-2 | Arsenic | 0.020 | U | mg/L | 0.020 | 4/08/16 14:24 | 5/03/16 12:50 | EPA 200.8 |
| 7440-39-3 | Barium | 1.1 | | mg/L | 0.020 | 4/08/16 14:18 | 4/12/16 15:21 | EPA 6010 |
| 7440-43-9 | Cadmium | 0.014 | | mg/L | 0.010 | 4/08/16 14:24 | 5/03/16 12:50 | EPA 200.8 |
| 7440-47-3 | Chromium | 0.020 | U | mg/L | 0.020 | 4/08/16 14:18 | 4/12/16 15:21 | EPA 6010 |
| 7439-92-1 | Lead | 0.63 | | mg/L | 0.020 | 4/08/16 14:24 | 5/03/16 12:50 | EPA 200.8 |
| 7439-97-6 | Mercury | 0.00010 | U, H-6 | mg/L | 0.00010 | 5/05/16 10:58 | 5/06/16 22:07 | EPA 245.1 |
| 7782-49-2 | Selenium | 0.040 | U | mg/L | 0.040 | 4/08/16 14:24 | 5/03/16 12:50 | EPA 200.8 |
| 7440-22-4 | Silver | 0.020 | U | mg/L | 0.020 | 4/08/16 14:18 | 4/12/16 15:21 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Physical Properties

Project: 16-0333, Ortek, Inc.

Sample ID: 3301606M

Lab ID: E161408-06

Station ID: SOUTH-WEST CORNER

Matrix: Soil

Date Collected: 3/30/16 15:21

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|---------------|--|---------|------------|-------|-----|------------------|-----------------|-----------|
| E1642941 | % Solids. Samples still oily after drying. Wet sample used | | | | 0.0 | 4/15/16 12:33 | 4/19/16 9:44 | EPA 200.2 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301607M

Lab ID: E161408-07

Station ID: SOUTH-WEST CORNER

Matrix: Soil

Date Collected: 3/30/16 15:36

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|------------|------------|---------|------------|-------|-------|-----------------|------------------|-----------|
| 7439-97-6 | Mercury | 0.17 | | mg/kg | 0.048 | 4/20/16 8:30 | 4/20/16 13:22 | EPA 245.5 |
| 7429-90-5 | Aluminum | 4000 | | mg/kg | 99 | 4/21/16 8:27 | 4/27/16 15:53 | EPA 6010 |
| 7440-36-0 | Antimony | 15 | | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 14:18 | EPA 200.8 |
| 7440-38-2 | Arsenic | 5.6 | | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 14:18 | EPA 200.8 |
| 7440-39-3 | Barium | 270 | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 15:53 | EPA 6010 |
| 7440-41-7 | Beryllium | 3.0 U | | mg/kg | 3.0 | 4/21/16 8:27 | 4/27/16 15:53 | EPA 6010 |
| 7440-43-9 | Cadmium | 2.0 | | mg/kg | 0.099 | 4/21/16 8:29 | 5/02/16 14:18 | EPA 200.8 |
| 7440-70-2 | Calcium | 54000 | | mg/kg | 250 | 4/21/16 8:27 | 4/27/16 15:53 | EPA 6010 |
| 7440-47-3 | Chromium | 160 | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 15:53 | EPA 6010 |
| 7440-48-4 | Cobalt | 31 | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 15:53 | EPA 6010 |
| 7440-50-8 | Copper | 680 | | mg/kg | 9.9 | 4/21/16 8:27 | 4/27/16 15:53 | EPA 6010 |
| 7439-89-6 | Iron | 28000 | | mg/kg | 99 | 4/21/16 8:27 | 4/27/16 15:53 | EPA 6010 |
| 7439-92-1 | Lead | 460 | | mg/kg | 5.0 | 4/21/16 8:29 | 5/02/16 14:22 | EPA 200.8 |
| 7439-95-4 | Magnesium | 29000 | | mg/kg | 250 | 4/21/16 8:27 | 4/27/16 15:53 | EPA 6010 |
| 7439-96-5 | Manganese | 380 | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 15:53 | EPA 6010 |
| 7439-98-7 | Molybdenum | 32 | | mg/kg | 9.9 | 4/21/16 8:27 | 4/27/16 15:53 | EPA 6010 |
| 7440-02-0 | Nickel | 240 | | mg/kg | 9.9 | 4/21/16 8:27 | 4/27/16 15:53 | EPA 6010 |
| 7440-09-7 | Potassium | 990 U | | mg/kg | 990 | 4/21/16 8:27 | 4/27/16 15:53 | EPA 6010 |
| 7782-49-2 | Selenium | 0.40 U | | mg/kg | 0.40 | 4/21/16 8:29 | 5/02/16 14:18 | EPA 200.8 |
| 7440-22-4 | Silver | 5.0 U | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 15:53 | EPA 6010 |
| 7440-23-5 | Sodium | 990 U | | mg/kg | 990 | 4/21/16 8:27 | 4/27/16 15:53 | EPA 6010 |
| 7440-24-6 | Strontium | 81 | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 15:53 | EPA 6010 |
| 7440-28-0 | Thallium | 0.20 U | | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 14:18 | EPA 200.8 |
| 7440-31-5 | Tin | 100 | | mg/kg | 15 | 4/21/16 8:27 | 4/27/16 15:53 | EPA 6010 |
| 7440-32-6 | Titanium | 81 | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 15:53 | EPA 6010 |
| 7440-62-2 | Vanadium | 19 | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 15:53 | EPA 6010 |
| 7440-65-5 | Yttrium | 3.5 | | mg/kg | 3.0 | 4/21/16 8:27 | 4/27/16 15:53 | EPA 6010 |
| 7440-66-6 | Zinc | 1200 | | mg/kg | 9.9 | 4/21/16 8:27 | 4/27/16 15:53 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

TCLP Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301607M

Lab ID: E161408-07

Station ID: SOUTH-WEST CORNER

Matrix: Soil

Date Collected: 3/30/16 15:36

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|---------------|----------|---------|------------|-------|---------|------------------|------------------|-----------|
| 7440-38-2 | Arsenic | 0.020 | U | mg/L | 0.020 | 4/08/16 14:24 | 5/03/16 12:54 | EPA 200.8 |
| 7440-39-3 | Barium | 1.2 | | mg/L | 0.020 | 4/08/16 14:18 | 4/12/16 15:24 | EPA 6010 |
| 7440-43-9 | Cadmium | 0.013 | | mg/L | 0.010 | 4/08/16 14:24 | 5/03/16 12:54 | EPA 200.8 |
| 7440-47-3 | Chromium | 0.020 | U | mg/L | 0.020 | 4/08/16 14:18 | 4/12/16 15:24 | EPA 6010 |
| 7439-92-1 | Lead | 0.11 | | mg/L | 0.020 | 4/08/16 14:24 | 5/03/16 12:54 | EPA 200.8 |
| 7439-97-6 | Mercury | 0.00010 | U, H-6 | mg/L | 0.00010 | 5/05/16 10:58 | 5/06/16 22:07 | EPA 245.1 |
| 7782-49-2 | Selenium | 0.040 | U | mg/L | 0.040 | 4/08/16 14:24 | 5/03/16 12:54 | EPA 200.8 |
| 7440-22-4 | Silver | 0.020 | U | mg/L | 0.020 | 4/08/16 14:18 | 4/12/16 15:24 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Physical Properties

Project: 16-0333, Ortek, Inc.

Sample ID: 3301607M

Lab ID: E161408-07

Station ID: SOUTH-WEST CORNER

Matrix: Soil

Date Collected: 3/30/16 15:36

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|---------------|--|---------|------------|-------|-----|------------------|-----------------|-----------|
| E164294I | % Solids: Samples still oily after drying. Wet sample used | | | | 0.0 | 4/15/16 12:33 | 4/19/16 9:44 | EPA 200.2 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301608M

Lab ID: E161408-08

Station ID: SOUTH-WEST CORNER

Matrix: Soil

Date Collected: 3/30/16 15:47

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|------------|------------|---------|------------|-------|-------|-----------------|------------------|-----------|
| 7439-97-6 | Mercury | 0.18 | | mg/kg | 0.050 | 4/20/16 8:30 | 4/20/16 13:22 | EPA 245.5 |
| 7429-90-5 | Aluminum | 4500 | | mg/kg | 150 | 4/21/16 8:27 | 4/27/16 15:56 | EPA 6010 |
| 7440-36-0 | Antimony | 8.3 | | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 14:26 | EPA 200.8 |
| 7440-38-2 | Arsenic | 6.6 | | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 14:26 | EPA 200.8 |
| 7440-39-3 | Barium | 330 | | mg/kg | 7.4 | 4/21/16 8:27 | 4/27/16 15:56 | EPA 6010 |
| 7440-41-7 | Beryllium | 4.4 U | | mg/kg | 4.4 | 4/21/16 8:27 | 4/27/16 15:56 | EPA 6010 |
| 7440-43-9 | Cadmium | 2.1 | | mg/kg | 0.099 | 4/21/16 8:29 | 5/02/16 14:26 | EPA 200.8 |
| 7440-70-2 | Calcium | 39000 | | mg/kg | 370 | 4/21/16 8:27 | 4/27/16 15:56 | EPA 6010 |
| 7440-47-3 | Chromium | 270 | | mg/kg | 7.4 | 4/21/16 8:27 | 4/27/16 15:56 | EPA 6010 |
| 7440-48-4 | Cobalt | 71 | | mg/kg | 7.4 | 4/21/16 8:27 | 4/27/16 15:56 | EPA 6010 |
| 7440-50-8 | Copper | 990 | | mg/kg | 15 | 4/21/16 8:27 | 4/27/16 15:56 | EPA 6010 |
| 7439-89-6 | Iron | 49000 | | mg/kg | 150 | 4/21/16 8:27 | 4/27/16 15:56 | EPA 6010 |
| 7439-92-1 | Lead | 660 | | mg/kg | 4.9 | 4/21/16 8:29 | 5/02/16 14:30 | EPA 200.8 |
| 7439-95-4 | Magnesium | 19000 | | mg/kg | 370 | 4/21/16 8:27 | 4/27/16 15:56 | EPA 6010 |
| 7439-96-5 | Manganese | 570 | | mg/kg | 7.4 | 4/21/16 8:27 | 4/27/16 15:56 | EPA 6010 |
| 7439-98-7 | Molybdenum | 55 | | mg/kg | 15 | 4/21/16 8:27 | 4/27/16 15:56 | EPA 6010 |
| 7440-02-0 | Nickel | 380 | | mg/kg | 15 | 4/21/16 8:27 | 4/27/16 15:56 | EPA 6010 |
| 7440-09-7 | Potassium | 1500 U | | mg/kg | 1500 | 4/21/16 8:27 | 4/27/16 15:56 | EPA 6010 |
| 7782-49-2 | Selenium | 0.40 U | | mg/kg | 0.40 | 4/21/16 8:29 | 5/02/16 14:26 | EPA 200.8 |
| 7440-22-4 | Silver | 7.4 U | | mg/kg | 7.4 | 4/21/16 8:27 | 4/27/16 15:56 | EPA 6010 |
| 7440-23-5 | Sodium | 1500 U | | mg/kg | 1500 | 4/21/16 8:27 | 4/27/16 15:56 | EPA 6010 |
| 7440-24-6 | Strontium | 69 | | mg/kg | 7.4 | 4/21/16 8:27 | 4/27/16 15:56 | EPA 6010 |
| 7440-28-0 | Thallium | 0.20 U | | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 14:26 | EPA 200.8 |
| 7440-31-5 | Tin | 31 | | mg/kg | 22 | 4/21/16 8:27 | 4/27/16 15:56 | EPA 6010 |
| 7440-32-6 | Titanium | 100 | | mg/kg | 7.4 | 4/21/16 8:27 | 4/27/16 15:56 | EPA 6010 |
| 7440-62-2 | Vanadium | 22 | | mg/kg | 7.4 | 4/21/16 8:27 | 4/27/16 15:56 | EPA 6010 |
| 7440-65-5 | Yttrium | 4.4 U | | mg/kg | 4.4 | 4/21/16 8:27 | 4/27/16 15:56 | EPA 6010 |
| 7440-66-6 | Zinc | 2000 | | mg/kg | 15 | 4/21/16 8:27 | 4/27/16 15:56 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

TCLP Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301608M

Lab ID: E161408-08

Station ID: SOUTH-WEST CORNER

Matrix: Soil

Date Collected: 3/30/16 15:47

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|------------|----------|---------|------------|-------|---------|------------------|------------------|-----------|
| 7440-38-2 | Arsenic | 0.020 | U | mg/L | 0.020 | 4/08/16 14:24 | 5/03/16 12:58 | EPA 200.8 |
| 7440-39-3 | Barium | 0.84 | | mg/L | 0.020 | 4/08/16 14:18 | 4/12/16 15:27 | EPA 6010 |
| 7440-43-9 | Cadmium | 0.010 | U | mg/L | 0.010 | 4/08/16 14:24 | 5/03/16 12:58 | EPA 200.8 |
| 7440-47-3 | Chromium | 0.020 | U | mg/L | 0.020 | 4/08/16 14:18 | 4/12/16 15:27 | EPA 6010 |
| 7439-92-1 | Lead | 0.15 | | mg/L | 0.020 | 4/08/16 14:24 | 5/03/16 12:58 | EPA 200.8 |
| 7439-97-6 | Mercury | 0.00010 | U, H-6 | mg/L | 0.00010 | 5/05/16 10:58 | 5/06/16 22:07 | EPA 245.1 |
| 7782-49-2 | Selenium | 0.040 | U | mg/L | 0.040 | 4/08/16 14:24 | 5/03/16 12:58 | EPA 200.8 |
| 7440-22-4 | Silver | 0.020 | U | mg/L | 0.020 | 4/08/16 14:18 | 4/12/16 15:27 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Physical Properties

Project: 16-0333, Ortek, Inc.

Sample ID: 3301608M

Lab ID: E161408-08

Station ID: SOUTH-WEST CORNER

Matrix: Soil

Date Collected: 3/30/16 15:47

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|---------------|--|---------|------------|-------|-----|------------------|-----------------|-----------|
| E1642941 | % Solids. Samples still oily after drying. Wet sample used | | | | 0.0 | 4/15/16 12:33 | 4/19/16 9:44 | EPA 200.2 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301609M

Lab ID: E161408-09

Station ID: SOUTH-WEST CORNER

Matrix: Soil

Date Collected: 3/30/16 16:04

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|------------|------------|---------|------------|-------|-------|-----------------|------------------|-----------|
| 7439-97-6 | Mercury | 0.21 | | mg/kg | 0.046 | 4/30/16 8:30 | 4/27/16 13:32 | EPA 245.5 |
| 7429-90-5 | Aluminum | 3800 | | mg/kg | 99 | 4/21/16 8:27 | 4/27/16 15:58 | EPA 6010 |
| 7440-36-0 | Antimony | 6.1 | | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 14:42 | EPA 200.8 |
| 7440-38-2 | Arsenic | 4.7 | | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 14:42 | EPA 200.8 |
| 7440-39-3 | Barium | 230 | | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:58 | EPA 6010 |
| 7440-41-7 | Beryllium | 3.0 U | | mg/kg | 3.0 | 4/21/16 8:27 | 4/27/16 15:58 | EPA 6010 |
| 7440-43-9 | Cadmium | 1.2 | | mg/kg | 0.099 | 4/21/16 8:29 | 5/02/16 14:42 | EPA 200.8 |
| 7440-70-2 | Calcium | 63000 | | mg/kg | 250 | 4/21/16 8:27 | 4/27/16 15:58 | EPA 6010 |
| 7440-47-3 | Chromium | 280 | | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:58 | EPA 6010 |
| 7440-48-4 | Cobalt | 53 | | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:58 | EPA 6010 |
| 7440-50-8 | Copper | 1000 | | mg/kg | 9.9 | 4/21/16 8:27 | 4/27/16 15:58 | EPA 6010 |
| 7439-89-6 | Iron | 40000 | | mg/kg | 99 | 4/21/16 8:27 | 4/27/16 15:58 | EPA 6010 |
| 7439-92-1 | Lead | 390 | | mg/kg | 4.9 | 4/21/16 8:29 | 5/02/16 14:46 | EPA 200.8 |
| 7439-95-4 | Magnesium | 33000 | | mg/kg | 250 | 4/21/16 8:27 | 4/27/16 15:58 | EPA 6010 |
| 7439-96-5 | Manganese | 470 | | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:58 | EPA 6010 |
| 7439-98-7 | Molybdenum | 40 | | mg/kg | 9.9 | 4/21/16 8:27 | 4/27/16 15:58 | EPA 6010 |
| 7440-02-0 | Nickel | 340 | | mg/kg | 9.9 | 4/21/16 8:27 | 4/27/16 15:58 | EPA 6010 |
| 7440-09-7 | Potassium | 990 U | | mg/kg | 990 | 4/21/16 8:27 | 4/27/16 15:58 | EPA 6010 |
| 7782-49-2 | Selenium | 0.39 U | | mg/kg | 0.39 | 4/21/16 8:29 | 5/02/16 14:42 | EPA 200.8 |
| 7440-22-4 | Silver | 4.9 U | | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:58 | EPA 6010 |
| 7440-23-5 | Sodium | 990 U | | mg/kg | 990 | 4/21/16 8:27 | 4/27/16 15:58 | EPA 6010 |
| 7440-24-6 | Strontium | 76 | | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:58 | EPA 6010 |
| 7440-28-0 | Thallium | 0.20 U | | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 14:42 | EPA 200.8 |
| 7440-31-5 | Tin | 26 | | mg/kg | 15 | 4/21/16 8:27 | 4/27/16 15:58 | EPA 6010 |
| 7440-32-6 | Titanium | 86 | | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:58 | EPA 6010 |
| 7440-62-2 | Vanadium | 18 | | mg/kg | 4.9 | 4/21/16 8:27 | 4/27/16 15:58 | EPA 6010 |
| 7440-65-5 | Yttrium | 3.0 U | | mg/kg | 3.0 | 4/21/16 8:27 | 4/27/16 15:58 | EPA 6010 |
| 7440-66-6 | Zinc | 1500 | | mg/kg | 9.9 | 4/21/16 8:27 | 4/27/16 15:58 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

TCLP Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301609M

Lab ID: E161408-09

Station ID: SOUTH-WEST CORNER

Matrix: Soil

Date Collected: 3/30/16 16:04

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|---------------|----------|---------|------------|-------|---------|------------------|------------------|-----------|
| 7440-38-2 | Arsenic | 0.020 | U | mg/L | 0.020 | 4/08/16 14:24 | 5/03/16 13:02 | EPA 200.8 |
| 7440-39-3 | Barium | 1.1 | | mg/L | 0.020 | 4/08/16 14:18 | 4/12/16 15:30 | EPA 6010 |
| 7440-43-9 | Cadmium | 0.010 | U | mg/L | 0.010 | 4/08/16 14:24 | 5/03/16 13:02 | EPA 200.8 |
| 7440-47-3 | Chromium | 0.11 | | mg/L | 0.020 | 4/08/16 14:18 | 4/12/16 15:30 | EPA 6010 |
| 7439-92-1 | Lead | 0.20 | | mg/L | 0.020 | 4/08/16 14:24 | 5/03/16 13:02 | EPA 200.8 |
| 7439-97-6 | Mercury | 0.00010 | U, H-6 | mg/L | 0.00010 | 5/05/16 10:58 | 5/06/16 22:07 | EPA 245.1 |
| 7782-49-2 | Selenium | 0.040 | U | mg/L | 0.040 | 4/08/16 14:24 | 5/03/16 13:02 | EPA 200.8 |
| 7440-22-4 | Silver | 0.020 | U | mg/L | 0.020 | 4/08/16 14:18 | 4/12/16 15:30 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Physical Properties

Project: 16-0333, Ortek, Inc.

Sample ID: 3301609M

Lab ID: E161408-09

Station ID: SOUTH-WEST CORNER

Matrix: Soil

Date Collected: 3/30/16 16:04

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|---------------|--|---------|------------|-------|-----|------------------|-----------------|-----------|
| E1642941 | % Solids: Samples still only after drying: Wet sample used | | | | 0.0 | 4/15/16 12:33 | 4/19/16 9:44 | EPA 200.7 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301610M

Lab ID: E161408-10

Station ID: SOUTH-WEST CORNER

Matrix: Soil

Date Collected: 3/30/16 16:14

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|------------|------------|---------|------------|-------|-------|-----------------|------------------|-----------|
| 7439-97-6 | Mercury | 0.23 | | mg/kg | 0.048 | 4/20/16 8:30 | 4/20/16 13:22 | EPA 245.5 |
| 7429-90-5 | Aluminum | 4200 | | mg/kg | 100 | 4/21/16 8:27 | 4/27/16 16:01 | EPA 6010 |
| 7440-36-0 | Antimony | 9.1 | | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 14:50 | EPA 200.8 |
| 7440-38-2 | Arsenic | 6.3 | | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 14:50 | EPA 200.8 |
| 7440-39-3 | Barium | 280 | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 16:01 | EPA 6010 |
| 7440-41-7 | Beryllium | 3.0 U | | mg/kg | 3.0 | 4/21/16 8:27 | 4/27/16 16:01 | EPA 6010 |
| 7440-43-9 | Cadmium | 2.0 | | mg/kg | 0.10 | 4/21/16 8:29 | 5/02/16 14:50 | EPA 200.8 |
| 7440-70-2 | Calcium | 46000 | | mg/kg | 250 | 4/21/16 8:27 | 4/27/16 16:01 | EPA 6010 |
| 7440-47-3 | Chromium | 190 | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 16:01 | EPA 6010 |
| 7440-48-4 | Cobalt | 44 | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 16:01 | EPA 6010 |
| 7440-50-8 | Copper | 950 | | mg/kg | 10 | 4/21/16 8:27 | 4/27/16 16:01 | EPA 6010 |
| 7439-89-6 | Iron | 32000 | | mg/kg | 100 | 4/21/16 8:27 | 4/27/16 16:01 | EPA 6010 |
| 7439-92-1 | Lead | 820 | | mg/kg | 5.0 | 4/21/16 8:29 | 5/02/16 14:54 | EPA 200.8 |
| 7439-95-4 | Magnesium | 24000 | | mg/kg | 250 | 4/21/16 8:27 | 4/27/16 16:01 | EPA 6010 |
| 7439-96-5 | Manganese | 410 | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 16:01 | EPA 6010 |
| 7439-98-7 | Molybdenum | 48 | | mg/kg | 10 | 4/21/16 8:27 | 4/27/16 16:01 | EPA 6010 |
| 7440-02-0 | Nickel | 190 | | mg/kg | 10 | 4/21/16 8:27 | 4/27/16 16:01 | EPA 6010 |
| 7440-09-7 | Potassium | 1000 U | | mg/kg | 1000 | 4/21/16 8:27 | 4/27/16 16:01 | EPA 6010 |
| 7782-49-2 | Selenium | 0.40 U | | mg/kg | 0.40 | 4/21/16 8:29 | 5/02/16 14:50 | EPA 200.8 |
| 7440-22-4 | Silver | 5.0 U | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 16:01 | EPA 6010 |
| 7440-23-5 | Sodium | 1000 U | | mg/kg | 1000 | 4/21/16 8:27 | 4/27/16 16:01 | EPA 6010 |
| 7440-24-6 | Strontium | 61 | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 16:01 | EPA 6010 |
| 7440-28-0 | Thallium | 0.20 U | | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 14:50 | EPA 200.8 |
| 7440-31-5 | Tin | 28 | | mg/kg | 15 | 4/21/16 8:27 | 4/27/16 16:01 | EPA 6010 |
| 7440-32-6 | Titanium | 72 | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 16:01 | EPA 6010 |
| 7440-62-2 | Vanadium | 18 | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 16:01 | EPA 6010 |
| 7440-65-5 | Yttrium | 3.2 | | mg/kg | 3.0 | 4/21/16 8:27 | 4/27/16 16:01 | EPA 6010 |
| 7440-66-6 | Zinc | 1500 | | mg/kg | 10 | 4/21/16 8:27 | 4/27/16 16:01 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

TCLP Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301610M

Lab ID: E161408-10

Station ID: SOUTH-WEST CORNER

Matrix: Soil

Date Collected: 3/30/16 16:14

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|---------------|----------|---------|------------|-------|---------|------------------|------------------|-----------|
| 7440-38-2 | Arsenic | 0.020 | U | mg/L | 0.020 | 4/08/16 14:24 | 5/03/16 13:06 | EPA 200.8 |
| 7440-39-3 | Barium | 1.3 | | mg/L | 0.020 | 4/08/16 14:18 | 4/12/16 15:32 | EPA 6010 |
| 7440-43-9 | Cadmium | 0.016 | | mg/L | 0.010 | 4/08/16 14:24 | 5/03/16 13:06 | EPA 200.8 |
| 7440-47-3 | Chromium | 0.020 | U | mg/L | 0.020 | 4/08/16 14:18 | 4/12/16 15:32 | EPA 6010 |
| 7439-92-1 | Lead | 0.48 | | mg/L | 0.020 | 4/08/16 14:24 | 5/03/16 13:06 | EPA 200.8 |
| 7439-97-6 | Mercury | 0.00010 | U, H-6 | mg/L | 0.00010 | 5/05/16 10:58 | 5/06/16 22:07 | EPA 245.1 |
| 7782-49-2 | Selenium | 0.040 | U | mg/L | 0.040 | 4/08/16 14:24 | 5/03/16 13:06 | EPA 200.8 |
| 7440-22-4 | Silver | 0.020 | U | mg/L | 0.020 | 4/08/16 14:18 | 4/12/16 15:32 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Physical Properties

Project: 16-0333, Ortek, Inc.

Sample ID: 3301610M

Lab ID: E161408-10

Station ID: SOUTH-WEST CORNER

Matrix: Soil

Date Collected: 3/30/16 16:14

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|---------------|--|---------|------------|-------|-----|------------------|-----------------|-----------|
| E1642941 | % Solids. Samples still oily after drying. Wet sample used | | | | 0.0 | 4/15/16 12:33 | 4/19/16 9:44 | EPA 200.2 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301610MDUP

Lab ID: E161408-11

Station ID: SOUTH-WEST CORNER

Matrix: Soil

Date Collected: 3/30/16 16:29

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|------------|------------|---------|------------|-------|-------|-----------------|------------------|-----------|
| 7439-97-6 | Mercury | 0.19 | | mg/kg | 0.049 | 4/20/16 8:30 | 4/20/16 13:22 | EPA 245.5 |
| 7429-90-5 | Aluminum | 2700 | | mg/kg | 99 | 4/21/16 8:27 | 4/27/16 16:04 | EPA 6010 |
| 7440-36-0 | Antimony | 8.1 | | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 14:58 | EPA 200.8 |
| 7440-38-2 | Arsenic | 5.0 | | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 14:58 | EPA 200.8 |
| 7440-39-3 | Barium | 180 | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 16:04 | EPA 6010 |
| 7440-41-7 | Beryllium | 3.0 U | | mg/kg | 3.0 | 4/21/16 8:27 | 4/27/16 16:04 | EPA 6010 |
| 7440-43-9 | Cadmium | 1.2 | | mg/kg | 0.099 | 4/21/16 8:29 | 5/02/16 14:58 | EPA 200.8 |
| 7440-70-2 | Calcium | 78000 | | mg/kg | 250 | 4/21/16 8:27 | 4/27/16 16:04 | EPA 6010 |
| 7440-47-3 | Chromium | 120 | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 16:04 | EPA 6010 |
| 7440-48-4 | Cobalt | 28 | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 16:04 | EPA 6010 |
| 7440-50-8 | Copper | 430 | | mg/kg | 9.9 | 4/21/16 8:27 | 4/27/16 16:04 | EPA 6010 |
| 7439-89-6 | Iron | 34000 | | mg/kg | 99 | 4/21/16 8:27 | 4/27/16 16:04 | EPA 6010 |
| 7439-92-1 | Lead | 650 | | mg/kg | 5.0 | 4/21/16 8:29 | 5/02/16 15:02 | EPA 200.8 |
| 7439-95-4 | Magnesium | 42000 | | mg/kg | 250 | 4/21/16 8:27 | 4/27/16 16:04 | EPA 6010 |
| 7439-96-5 | Manganese | 430 | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 16:04 | EPA 6010 |
| 7439-98-7 | Molybdenum | 36 | | mg/kg | 9.9 | 4/21/16 8:27 | 4/27/16 16:04 | EPA 6010 |
| 7440-02-0 | Nickel | 110 | | mg/kg | 9.9 | 4/21/16 8:27 | 4/27/16 16:04 | EPA 6010 |
| 7440-09-7 | Potassium | 990 U | | mg/kg | 990 | 4/21/16 8:27 | 4/27/16 16:04 | EPA 6010 |
| 7782-49-2 | Selenium | 0.40 U | | mg/kg | 0.40 | 4/21/16 8:29 | 5/02/16 14:58 | EPA 200.8 |
| 7440-22-4 | Silver | 5.0 U | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 16:04 | EPA 6010 |
| 7440-23-5 | Sodium | 990 U | | mg/kg | 990 | 4/21/16 8:27 | 4/27/16 16:04 | EPA 6010 |
| 7440-24-6 | Strontium | 51 | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 16:04 | EPA 6010 |
| 7440-28-0 | Thallium | 0.20 U | | mg/kg | 0.20 | 4/21/16 8:29 | 5/02/16 14:58 | EPA 200.8 |
| 7440-31-5 | Tin | 15 | | mg/kg | 15 | 4/21/16 8:27 | 4/27/16 16:04 | EPA 6010 |
| 7440-32-6 | Titanium | 46 | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 16:04 | EPA 6010 |
| 7440-62-2 | Vanadium | 12 | | mg/kg | 5.0 | 4/21/16 8:27 | 4/27/16 16:04 | EPA 6010 |
| 7440-65-5 | Yttrium | 3.1 | | mg/kg | 3.0 | 4/21/16 8:27 | 4/27/16 16:04 | EPA 6010 |
| 7440-66-6 | Zinc | 920 | | mg/kg | 9.9 | 4/21/16 8:27 | 4/27/16 16:04 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

TCLP Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301610MDUP

Lab ID: E161408-11

Station ID: SOUTH-WEST CORNER

Matrix: Soil

Date Collected: 3/30/16 16:29

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|---------------|----------|---------|------------|-------|---------|------------------|------------------|-----------|
| 7440-38-2 | Arsenic | 0.020 | U | mg/L | 0.020 | 4/28/16 13:47 | 5/03/16 14:03 | EPA 200.8 |
| 7440-39-3 | Barium | 1.2 | | mg/L | 0.020 | 4/28/16 13:19 | 5/04/16 12:47 | EPA 6010 |
| 7440-43-9 | Cadmium | 0.013 | | mg/L | 0.010 | 4/28/16 13:47 | 5/03/16 14:03 | EPA 200.8 |
| 7440-47-3 | Chromium | 0.020 | U | mg/L | 0.020 | 4/28/16 13:19 | 5/04/16 12:47 | EPA 6010 |
| 7439-92-1 | Lead | 0.24 | | mg/L | 0.020 | 4/28/16 13:47 | 5/03/16 14:03 | EPA 200.8 |
| 7439-97-6 | Mercury | 0.00010 | U | mg/L | 0.00010 | 5/05/16 10:58 | 5/06/16 22:07 | EPA 245.1 |
| 7782-49-2 | Selenium | 0.040 | U | mg/L | 0.040 | 4/28/16 13:47 | 5/03/16 14:03 | EPA 200.8 |
| 7440-22-4 | Silver | 0.020 | U | mg/L | 0.020 | 4/28/16 13:19 | 5/04/16 12:47 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Physical Properties

Project: 16-0333, Ortek, Inc.

Sample ID: 3301610MDUP

Lab ID: E161408-11

Station ID: SOUTH-WEST CORNER

Matrix: Soil

Date Collected: 3/30/16 16:29

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|---------------|--|---------|------------|-------|-----|------------------|-----------------|-----------|
| E164294J | % Solids: Samples still only after drying. Wet sample used | | | | 0.0 | 4/15/16 12:33 | 4/19/16 9:44 | EPA 200.2 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301604ML

Lab ID: E161408-12

Station ID: SOUTH ROLL-OFF

Matrix: Waste

Date Collected: 3/30/16 14:30

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|------------|------------|---------|------------|-------|-------|-----------------|------------------|-----------|
| 7439-97-6 | Mercury | 0.048 | U | mg/kg | 0.048 | 4/18/16 8:53 | 4/18/16 12:58 | EPA 245.5 |
| 7429-90-5 | Aluminum | 9.9 | U | mg/kg | 9.9 | 4/21/16 8:31 | 4/27/16 16:34 | EPA 6010 |
| 7440-36-0 | Antimony | 0.20 | U | mg/kg | 0.20 | 4/21/16 8:33 | 5/02/16 16:39 | EPA 200.8 |
| 7440-38-2 | Arsenic | 0.20 | U | mg/kg | 0.20 | 4/21/16 8:33 | 5/02/16 16:39 | EPA 200.8 |
| 7440-39-3 | Barium | 0.86 | | mg/kg | 0.50 | 4/21/16 8:31 | 4/27/16 16:34 | EPA 6010 |
| 7440-41-7 | Beryllium | 0.30 | U | mg/kg | 0.30 | 4/21/16 8:31 | 4/27/16 16:34 | EPA 6010 |
| 7440-43-9 | Cadmium | 0.099 | U | mg/kg | 0.099 | 4/21/16 8:33 | 5/02/16 16:39 | EPA 200.8 |
| 7440-70-2 | Calcium | 4400 | | mg/kg | 25 | 4/21/16 8:31 | 4/27/16 16:34 | EPA 6010 |
| 7440-47-3 | Chromium | 0.51 | | mg/kg | 0.50 | 4/21/16 8:31 | 4/27/16 16:34 | EPA 6010 |
| 7440-48-4 | Cobalt | 4.6 | | mg/kg | 0.50 | 4/21/16 8:31 | 4/27/16 16:34 | EPA 6010 |
| 7440-50-8 | Copper | 0.99 | U | mg/kg | 0.99 | 4/21/16 8:31 | 4/27/16 16:34 | EPA 6010 |
| 7439-89-6 | Iron | 1100 | | mg/kg | 9.9 | 4/21/16 8:31 | 4/27/16 16:34 | EPA 6010 |
| 7439-92-1 | Lead | 1.9 | J, QC-2 | mg/kg | 0.20 | 4/21/16 8:33 | 5/02/16 16:39 | EPA 200.8 |
| 7439-95-4 | Magnesium | 1100 | | mg/kg | 25 | 4/21/16 8:31 | 4/27/16 16:34 | EPA 6010 |
| 7439-96-5 | Manganese | 77 | | mg/kg | 0.50 | 4/21/16 8:31 | 4/27/16 16:34 | EPA 6010 |
| 7439-98-7 | Molybdenum | 0.99 | U | mg/kg | 0.99 | 4/21/16 8:31 | 4/27/16 16:34 | EPA 6010 |
| 7440-02-0 | Nickel | 5.2 | | mg/kg | 0.99 | 4/21/16 8:31 | 4/27/16 16:34 | EPA 6010 |
| 7440-09-7 | Potassium | 560 | | mg/kg | 99 | 4/21/16 8:31 | 4/27/16 16:34 | EPA 6010 |
| 7782-49-2 | Selenium | 0.40 | U | mg/kg | 0.40 | 4/21/16 8:33 | 5/02/16 16:39 | EPA 200.8 |
| 7440-22-4 | Silver | 0.50 | U | mg/kg | 0.50 | 4/21/16 8:31 | 4/27/16 16:34 | EPA 6010 |
| 7440-23-5 | Sodium | 3400 | | mg/kg | 99 | 4/21/16 8:31 | 4/27/16 16:34 | EPA 6010 |
| 7440-24-6 | Strontium | 11 | | mg/kg | 0.50 | 4/21/16 8:31 | 4/27/16 16:34 | EPA 6010 |
| 7440-28-0 | Thallium | 0.20 | U | mg/kg | 0.20 | 4/21/16 8:33 | 5/02/16 16:39 | EPA 200.8 |
| 7440-31-5 | Tin | 1.5 | U | mg/kg | 1.5 | 4/21/16 8:31 | 4/27/16 16:34 | EPA 6010 |
| 7440-32-6 | Titanium | 0.50 | U | mg/kg | 0.50 | 4/21/16 8:31 | 4/27/16 16:34 | EPA 6010 |
| 7440-62-2 | Vanadium | 0.50 | U | mg/kg | 0.50 | 4/21/16 8:31 | 4/27/16 16:34 | EPA 6010 |
| 7440-65-5 | Yttrium | 0.30 | U | mg/kg | 0.30 | 4/21/16 8:31 | 4/27/16 16:34 | EPA 6010 |
| 7440-66-6 | Zinc | 20 | | mg/kg | 0.99 | 4/21/16 8:31 | 4/27/16 16:34 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

TCLP Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301604ML

Lab ID: E161408-12

Station ID: SOUTH ROLL-OFF

Matrix: Waste

Date Collected: 3/30/16 14:30

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|---------------|----------|---------|------------|-------|---------|------------------|------------------|-----------|
| 7440-38-2 | Arsenic | 0.020 | U | mg/L | 0.020 | 4/28/16 13:47 | 5/03/16 14:07 | EPA 200.8 |
| 7440-39-3 | Barium | 0.63 | U | mg/L | 0.30 | 4/28/16 13:19 | 5/04/16 12:50 | EPA 6010 |
| 7440-43-9 | Cadmium | 0.010 | U | mg/L | 0.010 | 4/28/16 13:47 | 5/03/16 14:07 | EPA 200.8 |
| 7440-47-3 | Chromium | 0.30 | | mg/L | 0.30 | 4/28/16 13:19 | 5/04/16 12:50 | EPA 6010 |
| 7439-92-1 | Lead | 0.15 | | mg/L | 0.020 | 4/28/16 13:47 | 5/03/16 14:07 | EPA 200.8 |
| 7439-97-6 | Mercury | 0.00010 | U | mg/L | 0.00010 | 5/05/16 10:58 | 5/06/16 22:07 | EPA 245.1 |
| 7782-49-2 | Selenium | 0.040 | U | mg/L | 0.040 | 4/28/16 13:47 | 5/03/16 14:07 | EPA 200.8 |
| 7440-22-4 | Silver | 0.30 | U | mg/L | 0.30 | 4/28/16 13:19 | 5/04/16 12:50 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301605ML

Lab ID: E161408-13

Station ID: NORTH ROLL-OFF

Matrix: Waste

Date Collected: 3/30/16 14:49

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|------------|------------|---------|------------|-------|-------|-----------------|------------------|-----------|
| 7439-97-6 | Mercury | 0.044 | U | mg/kg | 0.044 | 4/18/16 8:33 | 4/18/16 12:58 | EPA 245.5 |
| 7429-90-5 | Aluminum | 9.6 | U | mg/kg | 9.6 | 4/21/16 8:31 | 4/27/16 16:37 | EPA 6010 |
| 7440-36-0 | Antimony | 0.19 | U | mg/kg | 0.19 | 4/21/16 8:33 | 5/02/16 16:43 | EPA 200.8 |
| 7440-38-2 | Arsenic | 0.19 | U | mg/kg | 0.19 | 4/21/16 8:33 | 5/02/16 16:43 | EPA 200.8 |
| 7440-39-3 | Barium | 0.48 | U | mg/kg | 0.48 | 4/21/16 8:31 | 4/27/16 16:37 | EPA 6010 |
| 7440-41-7 | Beryllium | 0.29 | U | mg/kg | 0.29 | 4/21/16 8:31 | 4/27/16 16:37 | EPA 6010 |
| 7440-43-9 | Cadmium | 0.096 | U | mg/kg | 0.096 | 4/21/16 8:33 | 5/02/16 16:43 | EPA 200.8 |
| 7440-70-2 | Calcium | 190 | | mg/kg | 24 | 4/21/16 8:31 | 4/27/16 16:37 | EPA 6010 |
| 7440-47-3 | Chromium | 0.48 | U | mg/kg | 0.48 | 4/21/16 8:31 | 4/27/16 16:37 | EPA 6010 |
| 7440-48-4 | Cobalt | 0.54 | | mg/kg | 0.48 | 4/21/16 8:31 | 4/27/16 16:37 | EPA 6010 |
| 7440-50-8 | Copper | 0.96 | U | mg/kg | 0.96 | 4/21/16 8:31 | 4/27/16 16:37 | EPA 6010 |
| 7439-89-6 | Iron | 100 | | mg/kg | 9.6 | 4/21/16 8:31 | 4/27/16 16:37 | EPA 6010 |
| 7439-92-1 | Lead | 0.73 | I, QC-2 | mg/kg | 0.19 | 4/21/16 8:33 | 5/02/16 16:43 | EPA 200.8 |
| 7439-95-4 | Magnesium | 84 | | mg/kg | 24 | 4/21/16 8:31 | 4/27/16 16:37 | EPA 6010 |
| 7439-96-5 | Manganese | 2.9 | | mg/kg | 0.48 | 4/21/16 8:31 | 4/27/16 16:37 | EPA 6010 |
| 7439-98-7 | Molybdenum | 0.96 | U | mg/kg | 0.96 | 4/21/16 8:31 | 4/27/16 16:37 | EPA 6010 |
| 7440-02-0 | Nickel | 2.6 | | mg/kg | 0.96 | 4/21/16 8:31 | 4/27/16 16:37 | EPA 6010 |
| 7440-09-7 | Potassium | 1600 | | mg/kg | 96 | 4/21/16 8:31 | 4/27/16 16:37 | EPA 6010 |
| 7782-49-2 | Selenium | 0.38 | U | mg/kg | 0.38 | 4/21/16 8:33 | 5/02/16 16:43 | EPA 200.8 |
| 7440-22-4 | Silver | 0.48 | U | mg/kg | 0.48 | 4/21/16 8:31 | 4/27/16 16:37 | EPA 6010 |
| 7440-23-5 | Sodium | 2600 | | mg/kg | 96 | 4/21/16 8:31 | 4/27/16 16:37 | EPA 6010 |
| 7440-24-6 | Strontium | 0.85 | | mg/kg | 0.48 | 4/21/16 8:31 | 4/27/16 16:37 | EPA 6010 |
| 7440-28-0 | Thallium | 0.19 | U | mg/kg | 0.19 | 4/21/16 8:33 | 5/02/16 16:43 | EPA 200.8 |
| 7440-31-5 | Tin | 1.4 | U | mg/kg | 1.4 | 4/21/16 8:31 | 4/27/16 16:37 | EPA 6010 |
| 7440-32-6 | Titanium | 0.48 | U | mg/kg | 0.48 | 4/21/16 8:31 | 4/27/16 16:37 | EPA 6010 |
| 7440-62-2 | Vanadium | 0.48 | U | mg/kg | 0.48 | 4/21/16 8:31 | 4/27/16 16:37 | EPA 6010 |
| 7440-65-5 | Yttrium | 0.29 | U | mg/kg | 0.29 | 4/21/16 8:31 | 4/27/16 16:37 | EPA 6010 |
| 7440-66-6 | Zinc | 2.8 | | mg/kg | 0.96 | 4/21/16 8:31 | 4/27/16 16:37 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

TCLP Metals

Project: 16-0333, Ortek, Inc.

Sample ID: 3301605ML

Lab ID: E161408-13

Station ID: NORTH ROLL-OFF

Matrix: Waste

Date Collected: 3/30/16 14:49

| CAS Number | Analyte | Results | Qualifiers | Units | MRL | Prepared | Analyzed | Method |
|---------------|----------|---------|------------|-------|---------|------------------|------------------|-----------|
| 7440-38-2 | Arsenic | 0.020 | U | mg/L | 0.020 | 4/28/16 13:47 | 5/03/16 14:11 | EPA 200.8 |
| 7440-39-3 | Barium | 0.20 | U | mg/L | 0.20 | 4/28/16 13:19 | 5/04/16 12:53 | EPA 6010 |
| 7440-43-9 | Cadmium | 0.010 | U | mg/L | 0.010 | 4/28/16 13:47 | 5/03/16 14:11 | EPA 200.8 |
| 7440-47-3 | Chromium | 0.20 | U | mg/L | 0.20 | 4/28/16 13:19 | 5/04/16 12:53 | EPA 6010 |
| 7439-92-1 | Lead | 0.35 | | mg/L | 0.020 | 4/28/16 13:47 | 5/03/16 14:11 | EPA 200.8 |
| 7439-97-6 | Mercury | 0.00010 | U | mg/L | 0.00010 | 5/05/16 10:58 | 5/06/16 22:07 | EPA 245.1 |
| 7782-49-2 | Selenium | 0.040 | U | mg/L | 0.040 | 4/28/16 13:47 | 5/03/16 14:11 | EPA 200.8 |
| 7440-22-4 | Silver | 0.20 | U | mg/L | 0.20 | 4/28/16 13:19 | 5/04/16 12:53 | EPA 6010 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, SESD

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|--|-------------|-----------------|-------|-------------------------------|---------------|-------------------------------|-------------|------|-----------|----------|
| Batch 1604075 - M 245.5 Hg Soil-Waste | | | | | | | | | | |
| Blank (1604075-BLK1) | | | | Prepared & Analyzed: 04/18/16 | | | | | | |
| EPA 245.5 | | | | | | | | | | |
| Mercury | U | 0.00010 | mg/kg | | | | | | | U |
| LCS (1604075-BS1) | | | | Prepared & Analyzed: 04/18/16 | | | | | | |
| EPA 245.5 | | | | | | | | | | |
| Mercury | 0.0019900 | 0.00010 | mg/kg | 0.0020800 | | 99.5 | 85-115 | | | |
| Matrix Spike (1604075-MS1) | | | | Source: E161408-03 | | Prepared & Analyzed: 04/18/16 | | | | |
| EPA 245.5 | | | | | | | | | | |
| Mercury | 1.1621 | 0.048 | mg/kg | 0.95057 | 0.17962 | 103 | 85-115 | | | |
| Matrix Spike (1604075-MS2) | | | | Source: E161408-13 | | Prepared & Analyzed: 04/18/16 | | | | |
| EPA 245.5 | | | | | | | | | | |
| Mercury | 0.96157 | 0.047 | mg/kg | 0.94877 | U | 101 | 85-115 | | | |
| Matrix Spike Dup (1604075-MSD1) | | | | Source: E161408-03 | | Prepared & Analyzed: 04/18/16 | | | | |
| EPA 245.5 | | | | | | | | | | |
| Mercury | 1.0997 | 0.047 | mg/kg | 0.94073 | 0.17962 | 97.8 | 85-115 | 5.51 | 20 | |
| Matrix Spike Dup (1604075-MSD2) | | | | Source: E161408-13 | | Prepared & Analyzed: 04/18/16 | | | | |
| EPA 245.5 | | | | | | | | | | |
| Mercury | 1.0049 | 0.049 | mg/kg | 0.98619 | U | 102 | 85-115 | 4.41 | 20 | |
| MRI Verification (1604075-PS1) | | | | Prepared & Analyzed: 04/18/16 | | | | | | |
| EPA 245.5 | | | | | | | | | | |
| Mercury | 0.000099000 | 0.00010 | mg/kg | 0.00010000 | | 99.0 | 65-135 | | | MRL-6, U |
| Batch 1604076 - M 245.5 Hg Soil-Waste | | | | | | | | | | |
| Blank (1604076-BLK1) | | | | Prepared & Analyzed: 04/20/16 | | | | | | |
| EPA 245.5 | | | | | | | | | | |
| Mercury | U | 0.048 | mg/kg | | | | | | | U |
| LCS (1604076-BS1) | | | | Prepared & Analyzed: 04/20/16 | | | | | | |
| EPA 245.5 | | | | | | | | | | |
| Mercury | 1.4411 | 0.049 | mg/kg | 1.4000 | | 103 | 85-115 | | | |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, SESD

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|

Batch 1604076 - M 245.5 Hg Soil-Waste

Matrix Spike (1604076-MS1)

Source: E161408-01

Prepared & Analyzed: 04/20/16

EPA 245.5

| | | | | | | | | | | |
|---------|--------|-------|-------|---------|---------|-----|--------|--|--|--|
| Mercury | 1.3134 | 0.050 | mg/kg | 0.99502 | 0.28088 | 104 | 85-115 | | | |
|---------|--------|-------|-------|---------|---------|-----|--------|--|--|--|

Matrix Spike Dup (1604076-MSD1)

Source: E161408-01

Prepared & Analyzed: 04/20/16

EPA 245.5

| | | | | | | | | | | |
|---------|--------|-------|-------|---------|---------|------|--------|------|----|--|
| Mercury | 1.2281 | 0.049 | mg/kg | 0.97466 | 0.28088 | 97.2 | 85-115 | 6.72 | 20 | |
|---------|--------|-------|-------|---------|---------|------|--------|------|----|--|

MRL Verification (1604076-PS1)

Prepared & Analyzed: 04/20/16

EPA 245.5

| | | | | | | | | | | |
|---------|------------|---------|-------|------------|--|-----|--------|--|--|-------|
| Mercury | 0.00010400 | 0.00010 | mg/kg | 0.00010000 | | 104 | 65-135 | | | MRL-6 |
|---------|------------|---------|-------|------------|--|-----|--------|--|--|-------|

Batch 1604100 - M 200.2 Metals Soil

Blank (1604100-BLK1)

Prepared: 04/21/16 Analyzed: 04/27/16

EPA 6010

| | | | | | | | | | | |
|------------|--------|------|-------|--|--|--|--|--|--|---|
| Aluminum | U | 10 | mg/kg | | | | | | | U |
| Barium | U | 0.50 | " | | | | | | | U |
| Beryllium | U | 0.30 | " | | | | | | | U |
| Calcium | U | 25 | " | | | | | | | U |
| Chromium | U | 0.50 | " | | | | | | | U |
| Cobalt | U | 0.50 | " | | | | | | | U |
| Copper | U | 1.0 | " | | | | | | | U |
| Iron | U | 10 | " | | | | | | | U |
| Magnesium | U | 25 | " | | | | | | | U |
| Manganese | U | 0.50 | " | | | | | | | U |
| Molybdenum | U | 1.0 | " | | | | | | | U |
| Nickel | U | 1.0 | " | | | | | | | U |
| Potassium | U | 100 | " | | | | | | | U |
| Silver | U | 0.50 | " | | | | | | | U |
| Sodium | U | 100 | " | | | | | | | U |
| Strontium | U | 0.50 | " | | | | | | | U |
| Tin | U | 1.5 | " | | | | | | | U |
| Titanium | U | 0.50 | " | | | | | | | U |
| Vanadium | U | 0.50 | " | | | | | | | U |
| Yttrium | U | 0.30 | " | | | | | | | U |
| Zinc | 4.1051 | 1.0 | " | | | | | | | U |

B-3,
XB-1



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, SESD

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

Batch 1604100 - M 200.2 Metals Soil

LCS (1604100-BS1)

Prepared: 04/21/16 Analyzed: 04/27/16

EPA 6010

| | | | | | | | | | | |
|------------|--------|------|-------|--------|--|------|--------|--|--|--|
| Aluminum | 493.50 | 10 | mg/kg | 500.00 | | 98.7 | 85-115 | | | |
| Barium | 49.623 | 0.50 | " | 50.000 | | 99.2 | 85-115 | | | |
| Beryllium | 19.674 | 0.30 | " | 20.000 | | 98.4 | 85-115 | | | |
| Calcium | 475.34 | 25 | " | 500.00 | | 95.1 | 85-115 | | | |
| Chromium | 46.016 | 0.50 | " | 50.000 | | 92.0 | 85-115 | | | |
| Cobalt | 46.502 | 0.50 | " | 50.000 | | 93.0 | 85-115 | | | |
| Copper | 30.702 | 1.0 | " | 30.000 | | 102 | 85-115 | | | |
| Iron | 508.30 | 10 | " | 500.00 | | 102 | 85-115 | | | |
| Magnesium | 514.43 | 25 | " | 500.00 | | 103 | 85-115 | | | |
| Manganese | 514.93 | 0.50 | " | 500.00 | | 103 | 85-115 | | | |
| Molybdenum | 29.763 | 1.0 | " | 30.000 | | 99.2 | 85-115 | | | |
| Nickel | 74.286 | 1.0 | " | 80.000 | | 92.9 | 85-115 | | | |
| Potassium | 998.57 | 100 | " | 1000.0 | | 99.9 | 85-115 | | | |
| Silver | 9.7369 | 0.50 | " | 10.000 | | 97.4 | 85-115 | | | |
| Sodium | 1051.7 | 100 | " | 1000.0 | | 105 | 85-115 | | | |
| Strontium | 40.421 | 0.50 | " | 40.000 | | 101 | 85-115 | | | |
| Tin | 92.977 | 1.5 | " | 100.00 | | 93.0 | 85-115 | | | |
| Titanium | 47.819 | 0.50 | " | 50.000 | | 95.6 | 85-115 | | | |
| Vanadium | 37.047 | 0.50 | " | 40.000 | | 92.6 | 85-115 | | | |
| Yttrium | 28.714 | 0.30 | " | 30.000 | | 95.7 | 85-115 | | | |
| Zinc | 96.289 | 1.0 | " | 100.00 | | 96.3 | 85-115 | | | |

Matrix Spike (1604100-MS1)

Source: E161408-01

Prepared: 04/21/16 Analyzed: 04/27/16

EPA 6010

| | | | | | | | | | | |
|------------|--------|-----|-------|--------|---------|------|--------|--|--|------|
| Aluminum | 4888.1 | 98 | mg/kg | 491.26 | 4697.6 | 38.8 | 75-125 | | | QM-1 |
| Barium | 286.78 | 4.9 | " | 49.126 | 234.37 | 107 | 75-125 | | | |
| Beryllium | 17.161 | 2.9 | " | 19.650 | 0.21880 | 86.2 | 75-125 | | | |
| Calcium | 58916 | 250 | " | 491.26 | 55383 | 719 | 75-125 | | | XM-1 |
| Chromium | 106.56 | 4.9 | " | 49.126 | 76.084 | 62.0 | 75-125 | | | QM-1 |
| Cobalt | 63.857 | 4.9 | " | 49.126 | 28.840 | 71.3 | 75-125 | | | QM-1 |
| Copper | 469.39 | 9.8 | " | 29.475 | 550.93 | -277 | 75-125 | | | XM-1 |
| Iron | 19816 | 98 | " | 491.26 | 19069 | 152 | 75-125 | | | XM-1 |
| Magnesium | 33141 | 250 | " | 491.26 | 29853 | 669 | 75-125 | | | XM-1 |
| Manganese | 776.48 | 4.9 | " | 491.26 | 380.07 | 80.7 | 75-125 | | | |
| Molybdenum | 48.106 | 9.8 | " | 29.475 | 28.647 | 66.0 | 75-125 | | | QM-1 |
| Nickel | 139.40 | 9.8 | " | 78.601 | 104.72 | 44.1 | 75-125 | | | QM-1 |
| Potassium | 1440.1 | 980 | " | 982.51 | 608.45 | 84.6 | 75-125 | | | |
| Silver | 10.157 | 4.9 | " | 9.8251 | 0.69769 | 96.3 | 75-125 | | | |
| Sodium | 1114.4 | 980 | " | 982.51 | 252.41 | 87.7 | 75-125 | | | |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, SESD

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|

Batch 1604100 - M 200.2 Metals Soil

| Matrix Spike (1604100-MS1) | | Source: E161408-01 | | Prepared: 04/21/16 Analyzed: 04/27/16 | | | | | | |
|----------------------------|--------|--------------------|-------|---------------------------------------|--------|------|--------|--|--|------|
| Strontium | 90.178 | 4.9 | mg/kg | 39.300 | 49.430 | 104 | 75-125 | | | |
| Tin | 89.646 | 15 | " | 98.251 | 17.749 | 73.2 | 75-125 | | | QM-1 |
| Titanium | 102.62 | 4.9 | " | 49.126 | 61.925 | 82.8 | 75-125 | | | |
| Vanadium | 46.941 | 4.9 | " | 39.300 | 13.690 | 84.6 | 75-125 | | | |
| Yttrium | 28.303 | 2.9 | " | 29.475 | 3.7843 | 83.2 | 75-125 | | | |
| Zinc | 877.56 | 9.8 | " | 98.251 | 992.69 | -117 | 75-125 | | | XM-1 |

| Matrix Spike Dup (1604100-MSD1) | | | Source: E161408-01 | | Prepared: 04/21/16 Analyzed: 04/27/16 | | | | | |
|---------------------------------|--------|------|--------------------|--------|---------------------------------------|-------|--------|------|----|---------------|
| EPA 6010 | | | | | | | | | | |
| Aluminum | 3893.4 | 100 | mg/kg | 498.80 | 4697.6 | -161 | 75-125 | 22.7 | 20 | QM-1 |
| Barium | 216.85 | 5.0 | " | 49.880 | 234.37 | -35.1 | 75-125 | 27.8 | 20 | QM-1, QM-3 |
| Beryllium | 16.367 | 3.0 | " | 19.952 | 0.21880 | 80.9 | 75-125 | 4.74 | 20 | |
| Calcium | 68825 | 250 | " | 498.80 | 55383 | 2690 | 75-125 | 15.5 | 20 | XM-1 |
| Chromium | 192.16 | 5.0 | " | 49.880 | 76.084 | 233 | 75-125 | 57.3 | 20 | QM-3, QM-2 |
| Cobalt | 58.324 | 5.0 | " | 49.880 | 28.840 | 59.1 | 75-125 | 9.06 | 20 | QM-1 |
| Copper | 1100.6 | 10 | " | 29.928 | 550.93 | 1840 | 75-125 | 80.4 | 20 | XM-1 |
| Iron | 28121 | 100 | " | 498.80 | 19069 | 1810 | 75-125 | 34.6 | 20 | XM-1 |
| Magnesium | 40556 | 250 | " | 498.80 | 29853 | 2150 | 75-125 | 20.1 | 20 | XM-1 |
| Manganese | 815.80 | 5.0 | " | 498.80 | 380.07 | 87.4 | 75-125 | 4.94 | 20 | |
| Molybdenum | 64.819 | 10 | " | 29.928 | 28.647 | 121 | 75-125 | 29.6 | 20 | QM-3 |
| Nickel | 149.34 | 10 | " | 79.808 | 104.72 | 55.9 | 75-125 | 6.88 | 20 | QM-1 |
| Potassium | 1297.6 | 1000 | " | 997.61 | 608.45 | 69.1 | 75-125 | 10.4 | 20 | QM-1 |
| Silver | 9.2889 | 5.0 | " | 9.9761 | 0.69769 | 86.1 | 75-125 | 8.93 | 20 | |
| Sodium | 1048.6 | 1000 | " | 997.61 | 252.41 | 79.8 | 75-125 | 6.08 | 20 | |
| Strontium | 77.150 | 5.0 | " | 39.904 | 49.430 | 69.5 | 75-125 | 15.6 | 20 | QM-1 |
| Tin | 216.11 | 15 | " | 99.761 | 17.749 | 199 | 75-125 | 82.7 | 20 | QM-3, QM-2 |
| Titanium | 81.739 | 5.0 | " | 49.880 | 61.925 | 39.7 | 75-125 | 22.6 | 20 | QM-1, QM-3 |
| Vanadium | 41.984 | 5.0 | " | 39.904 | 13.690 | 70.9 | 75-125 | 11.1 | 20 | QM-1 |
| Yttrium | 26.904 | 3.0 | " | 29.928 | 3.7843 | 77.3 | 75-125 | 5.07 | 20 | |
| Zinc | 704.27 | 10 | " | 99.761 | 992.69 | -289 | 75-125 | 21.9 | 20 | XM-1 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, SESD

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|-------------------------------------|---------|-----------------|-------|-------------|---------------------------------------|------|-------------|-----|-----------|-------------|
| Batch 1604100 - M 200.2 Metals Soil | | | | | | | | | | |
| MRL Verification (1604100-PS1) | | | | | Prepared: 04/21/16 Analyzed: 04/27/16 | | | | | |
| EPA 6010 | | | | | | | | | | |
| Aluminum | 9.8053 | 10 | mg/kg | 10.000 | | 98.1 | 70-130 | | | MRL-3, U |
| Barium | 0.51832 | 0.50 | " | 0.50000 | | 104 | 70-130 | | | MRL-3 |
| Beryllium | 0.30971 | 0.30 | " | 0.30000 | | 103 | 70-130 | | | MRL-3 |
| Calcium | 24.153 | 25 | " | 25.000 | | 96.6 | 70-130 | | | MRL-3, U |
| Chromium | 0.58136 | 0.50 | " | 0.50000 | | 116 | 70-130 | | | MRL-3 |
| Cobalt | 0.52166 | 0.50 | " | 0.50000 | | 104 | 70-130 | | | MRL-3 |
| Copper | 0.82321 | 1.0 | " | 1.0000 | | 82.3 | 70-130 | | | MRL-3, U |
| Iron | 10.584 | 10 | " | 10.000 | | 106 | 70-130 | | | MRL-3 |
| Magnesium | 25.880 | 25 | " | 25.000 | | 104 | 70-130 | | | MRL-3 |
| Manganese | 0.62365 | 0.50 | " | 0.50000 | | 125 | 70-130 | | | MRL-3 |
| Molybdenum | 1.0426 | 1.0 | " | 1.0000 | | 104 | 70-130 | | | MRL-3 |
| Nickel | 1.1770 | 1.0 | " | 1.0000 | | 118 | 70-130 | | | MRL-3 |
| Potassium | 96.659 | 100 | " | 100.00 | | 96.7 | 70-130 | | | MRL-3, U |
| Silver | 0.53450 | 0.50 | " | 0.50000 | | 107 | 70-130 | | | MRL-3 |
| Sodium | 105.46 | 100 | " | 100.00 | | 105 | 70-130 | | | MRL-3 |
| Strontium | 0.52388 | 0.50 | " | 0.50000 | | 105 | 70-130 | | | MRL-3 |
| Tin | 1.5381 | 1.5 | " | 1.5000 | | 103 | 70-130 | | | MRL-3 |
| Titanium | 0.53302 | 0.50 | " | 0.50000 | | 107 | 70-130 | | | MRL-3 |
| Vanadium | 0.50136 | 0.50 | " | 0.50000 | | 100 | 70-130 | | | MRL-3 |
| Yttrium | 0.33835 | 0.30 | " | 0.30000 | | 113 | 70-130 | | | MRL-3 |
| Zinc | 1.3717 | 1.0 | " | 1.0000 | | 137 | 70-130 | | | QR-2, MRL-3 |

Batch 1604101 - M 200.2 Metals Soil

| Blank (1604101-BLK1) | | | | Prepared: 04/21/16 Analyzed: 05/02/16 | |
|----------------------|---|-------|-------|---------------------------------------|---|
| EPA 200.8 | | | | | |
| Antimony | U | 0.10 | mg/kg | | U |
| Arsenic | U | 0.10 | " | | U |
| Cadmium | U | 0.050 | " | | U |
| Lead | U | 0.10 | " | | U |
| Selenium | U | 0.20 | " | | U |
| Silver | U | 0.050 | " | | U |
| Thallium | U | 0.10 | " | | U |



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980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, SESD

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

Batch 1604101 - M 200.2 Metals Soil

LCS (1604101-BS1)

Prepared: 04/21/16 Analyzed: 05/02/16

EPA 200.8

| | | | | | | | | | | |
|----------|--------|------|-------|--------|--|------|--------|--|--|--|
| Antimony | 99.174 | 1.2 | mg/kg | 100.00 | | 99.2 | 85-115 | | | |
| Arsenic | 48.020 | 1.2 | " | 50.000 | | 96.0 | 85-115 | | | |
| Cadmium | 20.550 | 0.62 | " | 20.000 | | 103 | 85-115 | | | |
| Lead | 103.96 | 1.2 | " | 100.00 | | 104 | 85-115 | | | |
| Selenium | 98.707 | 2.5 | " | 100.00 | | 98.7 | 85-115 | | | |
| Silver | 10.222 | 0.62 | " | 10.000 | | 102 | 85-115 | | | |
| Thallium | 20.465 | 1.2 | " | 20.000 | | 102 | 85-115 | | | |

Matrix Spike (1604101-MS1)

Source: E161408-01

Prepared: 04/21/16 Analyzed: 05/02/16

EPA 200.8

| | | | | | | | | | | |
|----------|--------|-----|-------|--------|---------|------|--------|--|--|------|
| Antimony | 48.573 | 4.9 | mg/kg | 98.251 | 9.4001 | 39.9 | 70-130 | | | QM-1 |
| Arsenic | 48.357 | 4.9 | " | 49.126 | 6.4155 | 85.4 | 70-130 | | | |
| Cadmium | 21.833 | 2.5 | " | 19.650 | 2.3236 | 99.3 | 70-130 | | | |
| Lead | 895.97 | 4.9 | " | 98.251 | 732.55 | 166 | 70-130 | | | XM-1 |
| Selenium | 82.141 | 9.8 | " | 98.251 | 0.34364 | 83.6 | 70-130 | | | |
| Silver | 10.885 | 2.5 | " | 9.8251 | 0.99820 | 101 | 70-130 | | | |
| Thallium | 17.741 | 4.9 | " | 19.650 | 0.10828 | 90.3 | 70-130 | | | |

Matrix Spike Dup (1604101-MSD1)

Source: E161408-01

Prepared: 04/21/16 Analyzed: 05/02/16

EPA 200.8

| | | | | | | | | | | |
|----------|--------|-----|-------|--------|---------|------|--------|-------|----|------|
| Antimony | 57.658 | 5.0 | mg/kg | 99.761 | 9.4001 | 48.4 | 70-130 | 17.1 | 20 | QM-1 |
| Arsenic | 54.084 | 5.0 | " | 49.880 | 6.4155 | 95.6 | 70-130 | 11.2 | 20 | |
| Cadmium | 21.777 | 2.5 | " | 19.952 | 2.3236 | 97.5 | 70-130 | 0.258 | 20 | |
| Lead | 868.09 | 5.0 | " | 99.761 | 732.55 | 136 | 70-130 | 3.16 | 20 | XM-1 |
| Selenium | 88.970 | 10 | " | 99.761 | 0.34364 | 89.2 | 70-130 | 7.98 | 20 | |
| Silver | 11.066 | 2.5 | " | 9.9761 | 0.99820 | 101 | 70-130 | 1.65 | 20 | |
| Thallium | 18.718 | 5.0 | " | 19.952 | 0.10828 | 93.8 | 70-130 | 5.36 | 20 | |

MRL Verification (1604101-PS1)

Prepared: 04/21/16 Analyzed: 05/02/16

EPA 200.8

| | | | | | | | | | | |
|----------|----------|-------|-------|----------|--|------|--------|--|--|----------|
| Antimony | 0.046326 | 0.10 | mg/kg | 0.050000 | | 92.7 | 65-135 | | | MRL-3, U |
| Arsenic | 0.091482 | 0.10 | " | 0.10000 | | 91.5 | 65-135 | | | MRL-3, U |
| Cadmium | 0.051636 | 0.050 | " | 0.050000 | | 103 | 65-135 | | | MRL-3 |
| Lead | 0.11003 | 0.10 | " | 0.10000 | | 110 | 65-135 | | | MRL-3 |
| Selenium | 0.18282 | 0.20 | " | 0.20000 | | 91.4 | 65-135 | | | MRL-3, U |
| Silver | 0.051391 | 0.050 | " | 0.050000 | | 103 | 65-135 | | | MRL-3 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, SESD

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|

Batch 1604101 - M 200.2 Metals Soil

MRI Verification (1604101-PS1)

Prepared: 04/21/16 Analyzed: 05/02/16

| | | | | | | | | | | |
|----------|----------|------|-------|----------|--|-----|--------|--|--|-------------|
| Thallium | 0.054061 | 0.10 | mg/kg | 0.050000 | | 108 | 65-135 | | | MRL-3, U |
|----------|----------|------|-------|----------|--|-----|--------|--|--|-------------|

Batch 1604102 - M 200.2 Metals Waste

Blank (1604102-BLK1)

Prepared: 04/21/16 Analyzed: 04/27/16

EPA 6010

| | | | | | | | | | | |
|------------|---|------|-------|--|--|--|--|--|--|---|
| Aluminum | U | 10 | mg/kg | | | | | | | U |
| Barium | U | 0.50 | " | | | | | | | U |
| Beryllium | U | 0.30 | " | | | | | | | U |
| Calcium | U | 25 | " | | | | | | | U |
| Chromium | U | 0.50 | " | | | | | | | U |
| Cobalt | U | 0.50 | " | | | | | | | U |
| Copper | U | 1.0 | " | | | | | | | U |
| Iron | U | 10 | " | | | | | | | U |
| Magnesium | U | 25 | " | | | | | | | U |
| Manganese | U | 0.50 | " | | | | | | | U |
| Molybdenum | U | 1.0 | " | | | | | | | U |
| Nickel | U | 1.0 | " | | | | | | | U |
| Potassium | U | 100 | " | | | | | | | U |
| Silver | U | 0.50 | " | | | | | | | U |
| Sodium | U | 100 | " | | | | | | | U |
| Strontium | U | 0.50 | " | | | | | | | U |
| Tin | U | 1.5 | " | | | | | | | U |
| Titanium | U | 0.50 | " | | | | | | | U |
| Vanadium | U | 0.50 | " | | | | | | | U |
| Yttrium | U | 0.30 | " | | | | | | | U |
| Zinc | U | 1.0 | " | | | | | | | U |



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980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Orteck, Inc. - Reported by Terri White

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, SESD

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

Batch 1604102 - M 200.2 Metals Waste

LCS (1604102-BS1)

Prepared: 04/21/16 Analyzed: 04/27/16

EPA 6010

| | | | | | | | | | | |
|------------|--------|------|-------|--------|--|------|--------|--|--|--|
| Aluminum | 500.01 | 10 | mg/kg | 500.00 | | 100 | 85-115 | | | |
| Barium | 49.708 | 0.50 | " | 50.000 | | 99.4 | 85-115 | | | |
| Beryllium | 19.646 | 0.30 | " | 20.000 | | 98.2 | 85-115 | | | |
| Calcium | 520.45 | 25 | " | 500.00 | | 104 | 85-115 | | | |
| Chromium | 47.923 | 0.50 | " | 50.000 | | 95.8 | 85-115 | | | |
| Cobalt | 48.364 | 0.50 | " | 50.000 | | 96.7 | 85-115 | | | |
| Copper | 29.764 | 1.0 | " | 30.000 | | 99.2 | 85-115 | | | |
| Iron | 529.61 | 10 | " | 500.00 | | 106 | 85-115 | | | |
| Magnesium | 522.51 | 25 | " | 500.00 | | 105 | 85-115 | | | |
| Manganese | 503.36 | 0.50 | " | 500.00 | | 101 | 85-115 | | | |
| Molybdenum | 30.107 | 1.0 | " | 30.000 | | 100 | 85-115 | | | |
| Nickel | 76.262 | 1.0 | " | 80.000 | | 95.3 | 85-115 | | | |
| Potassium | 994.04 | 100 | " | 1000.0 | | 99.4 | 85-115 | | | |
| Silver | 9.2350 | 0.50 | " | 10.000 | | 92.3 | 85-115 | | | |
| Sodium | 987.22 | 100 | " | 1000.0 | | 98.7 | 85-115 | | | |
| Strontium | 38.637 | 0.50 | " | 40.000 | | 96.6 | 85-115 | | | |
| Tin | 99.332 | 1.5 | " | 100.00 | | 99.3 | 85-115 | | | |
| Titanium | 48.198 | 0.50 | " | 50.000 | | 96.4 | 85-115 | | | |
| Vanadium | 39.176 | 0.50 | " | 40.000 | | 97.9 | 85-115 | | | |
| Yttrium | 28.806 | 0.30 | " | 30.000 | | 96.0 | 85-115 | | | |
| Zinc | 99.526 | 1.0 | " | 100.00 | | 99.5 | 85-115 | | | |

Matrix Spike (1604102-MS2)

Source: E161408-05RE1

Prepared: 04/21/16 Analyzed: 04/28/16

EPA 6010

| | | | | | | | | | | |
|------------|--------|-----|-------|--------|--------|-------|--------|--|--|---------------|
| Aluminum | 5161.3 | 96 | mg/kg | 481.32 | 5401.4 | -49.9 | 75-125 | | | XM-1 |
| Barium | 363.20 | 4.8 | " | 48.132 | 281.25 | 170 | 75-125 | | | QM-2 |
| Beryllium | 15.806 | 2.9 | " | 19.253 | U | 82.1 | 75-125 | | | |
| Calcium | 23870 | 240 | " | 481.32 | 21040 | 588 | 75-125 | | | XM-1 |
| Chromium | 267.77 | 4.8 | " | 48.132 | 199.72 | 141 | 75-125 | | | QM-2 |
| Cobalt | 68.209 | 4.8 | " | 48.132 | 30.194 | 79.0 | 75-125 | | | |
| Copper | 1246.1 | 9.6 | " | 28.879 | 1035.8 | 728 | 75-125 | | | XM-1 |
| Iron | 34465 | 96 | " | 481.32 | 32961 | 312 | 75-125 | | | XM-1 |
| Magnesium | 5426.7 | 240 | " | 481.32 | 4570.3 | 178 | 75-125 | | | QM-2 |
| Manganese | 868.59 | 4.8 | " | 481.32 | 385.21 | 100 | 75-125 | | | |
| Molybdenum | 90.030 | 9.6 | " | 28.879 | 41.125 | 169 | 75-125 | | | QM-2 |
| Nickel | 264.15 | 9.6 | " | 77.012 | 254.54 | 12.5 | 75-125 | | | QM-1 |
| Potassium | 1764.5 | 960 | " | 962.65 | 847.82 | 95.2 | 75-125 | | | |
| Silver | 22.756 | 4.8 | " | 9.6265 | 31.857 | -94.5 | 75-125 | | | QM-3, QM-1 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, SESD

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

Batch 1604102 - M 200.2 Metals Waste

| Matrix Spike (1604102-MS2) | | Source: E161408-05RE1 | | | Prepared: 04/21/16 Analyzed: 04/28/16 | | | | | |
|----------------------------|--------|-----------------------|-------|--------|---------------------------------------|------|--------|--|--|---------------|
| Sodium | 2775.1 | 960 | mg/kg | 962.65 | 1526.5 | 130 | 75-125 | | | QM-2 |
| Strontium | 112.64 | 4.8 | " | 38.506 | 74.802 | 98.3 | 75-125 | | | |
| Tin | 472.08 | 14 | " | 96.265 | 812.43 | -354 | 75-125 | | | QM-3, QM-1 |
| Titanium | 97.205 | 4.8 | " | 48.132 | 45.079 | 108 | 75-125 | | | |
| Vanadium | 50.414 | 4.8 | " | 38.506 | 19.036 | 81.5 | 75-125 | | | QM-3 |
| Yttrium | 25.812 | 2.9 | " | 28.879 | 3.1838 | 78.4 | 75-125 | | | |
| Zinc | 3253.6 | 9.6 | " | 96.265 | 3053.3 | 208 | 75-125 | | | XM-1 |

Matrix Spike Dup (1604102-MSD2) Source: E161408-05RE1 Prepared: 04/21/16 Analyzed: 04/28/16

EPA 6010

| | | | | | | | | | | |
|------------|--------|-----|-------|--------|--------|-------|--------|-------|----|---------------|
| Aluminum | 5235.7 | 97 | mg/kg | 484.31 | 5401.4 | -34.2 | 75-125 | 1.43 | 20 | XM-1 |
| Barium | 310.23 | 4.8 | " | 48.431 | 281.25 | 59.8 | 75-125 | 15.7 | 20 | QM-1 |
| Beryllium | 15.742 | 2.9 | " | 19.372 | U | 81.3 | 75-125 | 0.406 | 20 | |
| Calcium | 22286 | 240 | " | 484.31 | 21040 | 257 | 75-125 | 6.86 | 20 | XM-1 |
| Chromium | 236.85 | 4.8 | " | 48.431 | 199.72 | 76.7 | 75-125 | 12.3 | 20 | |
| Cobalt | 75.289 | 4.8 | " | 48.431 | 30.194 | 93.1 | 75-125 | 9.87 | 20 | |
| Copper | 1405.3 | 9.7 | " | 29.058 | 1035.8 | 1270 | 75-125 | 12.0 | 20 | XM-1 |
| Iron | 33665 | 97 | " | 484.31 | 32961 | 145 | 75-125 | 2.35 | 20 | XM-1 |
| Magnesium | 6184.1 | 240 | " | 484.31 | 4570.3 | 333 | 75-125 | 13.0 | 20 | QM-2 |
| Manganese | 841.38 | 4.8 | " | 484.31 | 385.21 | 94.2 | 75-125 | 3.18 | 20 | |
| Molybdenum | 94.997 | 9.7 | " | 29.058 | 41.125 | 185 | 75-125 | 5.37 | 20 | QM-2 |
| Nickel | 232.15 | 9.7 | " | 77.489 | 254.54 | -28.9 | 75-125 | 12.9 | 20 | QM-1 |
| Potassium | 1777.3 | 970 | " | 968.62 | 847.82 | 96.0 | 75-125 | 0.724 | 20 | |
| Silver | 14.167 | 4.8 | " | 9.6862 | 31.857 | -183 | 75-125 | 46.5 | 20 | QM-1, QM-3 |
| Sodium | 2928.1 | 970 | " | 968.62 | 1526.5 | 145 | 75-125 | 5.37 | 20 | QM-2 |
| Strontium | 121.73 | 4.8 | " | 38.745 | 74.802 | 121 | 75-125 | 7.76 | 20 | |
| Tin | 238.02 | 15 | " | 96.862 | 812.43 | -593 | 75-125 | 65.9 | 20 | QM-1, QM-3 |
| Titanium | 100.22 | 4.8 | " | 48.431 | 45.079 | 114 | 75-125 | 3.05 | 20 | |
| Vanadium | 69.412 | 4.8 | " | 38.745 | 19.036 | 130 | 75-125 | 31.7 | 20 | QM-3, QM-2 |
| Yttrium | 25.782 | 2.9 | " | 29.058 | 3.1838 | 77.8 | 75-125 | 0.116 | 20 | |
| Zinc | 3391.0 | 9.7 | " | 96.862 | 3053.3 | 349 | 75-125 | 4.14 | 20 | XM-1 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, SESD

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|

Batch 1604102 - M 200.2 Metals Waste

MRL Verification (1604102-PS1)

Prepared: 04/21/16 Analyzed: 04/27/16

EPA 6010

| | | | | | | | | | | |
|------------|---------|------|-------|---------|--|------|--------|--|--|-------------|
| Aluminum | 9.8147 | 10 | mg/kg | 10.000 | | 98.1 | 70-130 | | | MRL-6, U |
| Barium | 0.55096 | 0.50 | " | 0.50000 | | 110 | 70-130 | | | MRL-6 |
| Beryllium | 0.29855 | 0.30 | " | 0.30000 | | 99.5 | 70-130 | | | MRL-6, U |
| Calcium | 26.441 | 25 | " | 25.000 | | 106 | 70-130 | | | MRL-6 |
| Chromium | 0.52257 | 0.50 | " | 0.50000 | | 105 | 70-130 | | | MRL-6 |
| Cobalt | 0.48838 | 0.50 | " | 0.50000 | | 97.7 | 70-130 | | | MRL-6, U |
| Copper | 1.0751 | 1.0 | " | 1.0000 | | 108 | 70-130 | | | MRL-6 |
| Iron | 11.552 | 10 | " | 10.000 | | 116 | 70-130 | | | MRL-6 |
| Magnesium | 27.139 | 25 | " | 25.000 | | 109 | 70-130 | | | MRL-6 |
| Manganese | 0.55929 | 0.50 | " | 0.50000 | | 112 | 70-130 | | | MRL-6 |
| Molybdenum | 1.0115 | 1.0 | " | 1.0000 | | 101 | 70-130 | | | MRL-6 |
| Nickel | 1.0015 | 1.0 | " | 1.0000 | | 100 | 70-130 | | | MRL-6 |
| Potassium | 100.23 | 100 | " | 100.00 | | 100 | 70-130 | | | MRL-6 |
| Silver | 0.43275 | 0.50 | " | 0.50000 | | 86.5 | 70-130 | | | MRL-6, U |
| Sodium | 103.13 | 100 | " | 100.00 | | 103 | 70-130 | | | MRL-6 |
| Strontium | 0.49889 | 0.50 | " | 0.50000 | | 99.8 | 70-130 | | | MRL-6, U |
| Tin | 1.4937 | 1.5 | " | 1.5000 | | 99.6 | 70-130 | | | MRL-6, U |
| Titanium | 0.52175 | 0.50 | " | 0.50000 | | 104 | 70-130 | | | MRL-6 |
| Vanadium | 0.59216 | 0.50 | " | 0.50000 | | 118 | 70-130 | | | MRL-6 |
| Yttrium | 0.29934 | 0.30 | " | 0.30000 | | 99.8 | 70-130 | | | MRL-6, U |
| Zinc | 1.1029 | 1.0 | " | 1.0000 | | 110 | 70-130 | | | MRL-6 |

Batch 1604103 - M 200.2 Metals Waste

Blank (1604103-BLK1)

Prepared: 04/21/16 Analyzed: 05/02/16

EPA 200.8

| | | | | | | | | | | |
|----------|---|-------|-------|--|--|--|--|--|--|---|
| Antimony | U | 0.10 | mg/kg | | | | | | | U |
| Arsenic | U | 0.10 | " | | | | | | | U |
| Cadmium | U | 0.050 | " | | | | | | | U |
| Lead | U | 0.10 | " | | | | | | | U |
| Selenium | U | 0.20 | " | | | | | | | U |
| Silver | U | 0.050 | " | | | | | | | U |
| Thallium | U | 0.10 | " | | | | | | | U |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, SESD

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|

Batch 1604103 - M 200.2 Metals Waste

LCS (1604103-BS1)

Prepared: 04/21/16 Analyzed: 05/02/16

EPA 200.8

| | | | | | | | | | | |
|----------|--------|------|-------|--------|--|------|--------|--|--|--|
| Antimony | 97.343 | 1.2 | mg/kg | 100.00 | | 97.3 | 85-115 | | | |
| Arsenic | 47.809 | 1.2 | " | 50.000 | | 95.6 | 85-115 | | | |
| Cadmium | 19.419 | 0.62 | " | 20.000 | | 97.1 | 85-115 | | | |
| Lead | 103.63 | 1.2 | " | 100.00 | | 104 | 85-115 | | | |
| Selenium | 100.30 | 2.5 | " | 100.00 | | 100 | 85-115 | | | |
| Silver | 9.7651 | 0.62 | " | 10.000 | | 97.7 | 85-115 | | | |
| Thallium | 20.124 | 1.2 | " | 20.000 | | 101 | 85-115 | | | |

Matrix Spike (1604103-MS1)

Source: E161408-05

Prepared: 04/21/16 Analyzed: 05/02/16

EPA 200.8

| | | | | | | | | | | |
|----------|--------|-----|-------|--------|---------|------|--------|--|--|------|
| Antimony | 74.484 | 2.4 | mg/kg | 96.265 | 13.636 | 63.2 | 70-130 | | | QM-1 |
| Arsenic | 54.308 | 2.4 | " | 48.132 | 8.7942 | 94.6 | 70-130 | | | |
| Cadmium | 36.945 | 1.2 | " | 19.253 | 25.255 | 60.7 | 70-130 | | | QM-1 |
| Selenium | 87.066 | 4.8 | " | 96.265 | 0.30424 | 90.4 | 70-130 | | | |
| Silver | 24.937 | 1.2 | " | 9.6265 | 36.735 | -123 | 70-130 | | | QM-1 |
| Thallium | 18.835 | 2.4 | " | 19.253 | 0.30446 | 96.2 | 70-130 | | | |

Matrix Spike (1604103-MS2)

Source: E161408-05RE2

Prepared: 04/21/16 Analyzed: 05/02/16

EPA 200.8

| | | | | | | | | | | |
|------|--------|----|-------|--------|--------|------|--------|--|--|------|
| Lead | 2688.7 | 24 | mg/kg | 96.265 | 3630.4 | -978 | 70-130 | | | XM-1 |
|------|--------|----|-------|--------|--------|------|--------|--|--|------|

Matrix Spike Dup (1604103-MSD1)

Source: E161408-05

Prepared: 04/21/16 Analyzed: 05/02/16

EPA 200.8

| | | | | | | | | | | |
|----------|--------|-----|-------|--------|---------|------|--------|------|----|---------------|
| Antimony | 71.659 | 2.4 | mg/kg | 96.862 | 13.636 | 59.9 | 70-130 | 3.87 | 20 | QM-1 |
| Arsenic | 53.285 | 2.4 | " | 48.431 | 8.7942 | 91.9 | 70-130 | 1.90 | 20 | |
| Cadmium | 35.810 | 1.2 | " | 19.372 | 25.255 | 54.5 | 70-130 | 3.12 | 20 | QM-1 |
| Selenium | 82.388 | 4.8 | " | 96.862 | 0.30424 | 85.1 | 70-130 | 5.52 | 20 | |
| Silver | 15.897 | 1.2 | " | 9.6862 | 36.735 | -215 | 70-130 | 44.3 | 20 | QM-1, QM-3 |
| Thallium | 18.362 | 2.4 | " | 19.372 | 0.30446 | 93.2 | 70-130 | 2.55 | 20 | |

Matrix Spike Dup (1604103-MSD2)

Source: E161408-05RE2

Prepared: 04/21/16 Analyzed: 05/02/16

EPA 200.8

| | | | | | | | | | | |
|------|--------|----|-------|--------|--------|-------|--------|------|----|---------------|
| Lead | 1751.5 | 24 | mg/kg | 96.862 | 3630.4 | -1940 | 70-130 | 42.2 | 20 | QM-3, XM-1 |
|------|--------|----|-------|--------|--------|-------|--------|------|----|---------------|



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, SESD

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|

Batch 1604103 - M 200.2 Metals Waste

MRL Verification (1604103-PS1)

Prepared: 04/21/16 Analyzed: 05/02/16

EPA 200.8

| | | | | | | | | | | |
|----------|----------|-------|-------|----------|--|------|--------|--|--|----------------|
| Antimony | 0.047756 | 0.10 | mg/kg | 0.050000 | | 95.5 | 65-135 | | | MRL-6, U |
| Arsenic | 0.11075 | 0.10 | " | 0.10000 | | 111 | 65-135 | | | MRL-6 |
| Cadmium | 0.052436 | 0.050 | " | 0.050000 | | 105 | 65-135 | | | MRL-6 |
| Lead | 0.14220 | 0.10 | " | 0.10000 | | 142 | 65-135 | | | MRL-6, QR-2 |
| Selenium | 0.21574 | 0.20 | " | 0.20000 | | 108 | 65-135 | | | MRL-6 |
| Silver | 0.049944 | 0.050 | " | 0.050000 | | 99.9 | 65-135 | | | MRL-6, U |
| Thallium | 0.054970 | 0.10 | " | 0.050000 | | 110 | 65-135 | | | MRL-6, U |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

TCLP Metals (TCLPM) - Quality Control

US-EPA, Region 4, SESD

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------------------------------|--------|-----------------|-------|---------------------------------------|---------------|---------------------------------------|-------------|------|-----------|-------|
| Batch 1604040 - M 200.2 TCLP | | | | | | | | | | |
| Blank (1604040-BLK1) | | | | Prepared: 04/08/16 Analyzed: 04/12/16 | | | | | | |
| EPA 6010 | | | | | | | | | | |
| Barium | U | 0.0050 | mg/L | | | | | | | U |
| Chromium | U | 0.0050 | " | | | | | | | U |
| Silver | U | 0.0050 | " | | | | | | | U |
| Blank (1604040-BLK2) | | | | Prepared: 04/08/16 Analyzed: 04/12/16 | | | | | | |
| EPA 6010 | | | | | | | | | | |
| Barium | 0.0243 | 0.020 | mg/L | | | | | | | B-3 |
| Chromium | U | 0.020 | " | | | | | | | U |
| Silver | U | 0.020 | " | | | | | | | U |
| Blank (1604040-BLK3) | | | | Prepared: 04/08/16 Analyzed: 04/12/16 | | | | | | |
| EPA 6010 | | | | | | | | | | |
| Barium | 0.0257 | 0.020 | mg/L | | | | | | | B-3 |
| Chromium | U | 0.020 | " | | | | | | | U |
| Silver | U | 0.020 | " | | | | | | | U |
| LCS (1604040-BS1) | | | | Prepared: 04/08/16 Analyzed: 04/12/16 | | | | | | |
| EPA 6010 | | | | | | | | | | |
| Barium | 4.72 | 0.015 | mg/L | 5.0000 | | 94.4 | 85-115 | | | |
| Chromium | 4.70 | 0.015 | " | 5.0000 | | 94.0 | 85-115 | | | |
| Silver | 0.0967 | 0.015 | " | 0.10000 | | 96.7 | 85-115 | | | |
| Matrix Spike (1604040-MS1) | | | | Source: E161408-01 | | Prepared: 04/08/16 Analyzed: 04/12/16 | | | | |
| EPA 6010 | | | | | | | | | | |
| Barium | 19.7 | 0.060 | mg/L | 20.000 | 1.26 | 92.4 | 75-125 | | | |
| Chromium | 18.7 | 0.060 | " | 20.000 | 0.00933 | 93.3 | 75-125 | | | |
| Silver | 0.384 | 0.060 | " | 0.40000 | U | 96.0 | 75-125 | | | |
| Matrix Spike Dup (1604040-MSD1) | | | | Source: E161408-01 | | Prepared: 04/08/16 Analyzed: 04/12/16 | | | | |
| EPA 6010 | | | | | | | | | | |
| Barium | 20.0 | 0.060 | mg/L | 20.000 | 1.26 | 93.5 | 75-125 | 1.09 | 25 | |
| Chromium | 18.5 | 0.060 | " | 20.000 | 0.00933 | 92.2 | 75-125 | 1.10 | 25 | |
| Silver | 0.378 | 0.060 | " | 0.40000 | U | 94.5 | 75-125 | 1.59 | 25 | |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

TCLP Metals (TCLPM) - Quality Control

US-EPA, Region 4, SESD

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|

Batch 1604040 - M 200.2 TCLP

MRI Verification (1604040-PS1)

Prepared: 04/08/16 Analyzed: 04/12/16

EPA 6010

| | | | | | | | | | | |
|----------|---------|--------|------|-----------|--|------|--------|--|--|-------------|
| Barium | 0.00492 | 0.0050 | mg/L | 0.0050000 | | 98.4 | 70-130 | | | MRL-9, U |
| Chromium | 0.00514 | 0.0050 | " | 0.0050000 | | 103 | 70-130 | | | MRL-9 |
| Silver | 0.00476 | 0.0050 | " | 0.0050000 | | 95.2 | 70-130 | | | MRL-9, U |

Batch 1604041 - M 200.2 TCLP

Blank (1604041-BLK1)

Prepared: 04/08/16 Analyzed: 05/03/16

EPA 200.8

| | | | | | | | | | | |
|----------|---|---------|------|--|--|--|--|--|--|---|
| Arsenic | U | 0.0010 | mg/L | | | | | | | U |
| Cadmium | U | 0.00050 | " | | | | | | | U |
| Lead | U | 0.0010 | " | | | | | | | U |
| Selenium | U | 0.0020 | " | | | | | | | U |
| Silver | U | 0.00050 | " | | | | | | | U |

Blank (1604041-BLK2)

Prepared: 04/08/16 Analyzed: 05/03/16

EPA 200.8

| | | | | | | | | | | |
|----------|---------|--------|------|--|--|--|--|--|--|-----|
| Arsenic | U | 0.0040 | mg/L | | | | | | | U |
| Cadmium | U | 0.0020 | " | | | | | | | U |
| Lead | 0.00795 | 0.0040 | " | | | | | | | B-3 |
| Selenium | U | 0.0080 | " | | | | | | | U |
| Silver | U | 0.0020 | " | | | | | | | U |

Blank (1604041-BLK3)

Prepared: 04/08/16 Analyzed: 05/03/16

EPA 200.8

| | | | | | | | | | | |
|----------|--------|--------|------|--|--|--|--|--|--|-----|
| Arsenic | U | 0.0040 | mg/L | | | | | | | U |
| Cadmium | U | 0.0020 | " | | | | | | | U |
| Lead | 0.0105 | 0.0040 | " | | | | | | | B-3 |
| Selenium | U | 0.0080 | " | | | | | | | U |
| Silver | U | 0.0020 | " | | | | | | | U |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

TCLP Metals (TCLPM) - Quality Control

US-EPA, Region 4, SESD

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

Batch 1604041 - M 200.2 TCLP

LCS (1604041-BS1)

Prepared: 04/08/16 Analyzed: 05/03/16

EPA 200.8

| | | | | | | | | | | |
|----------|-------|-------|------|---------|--|------|--------|--|--|--|
| Arsenic | 4.96 | 0.050 | mg/L | 5.0000 | | 99.3 | 85-115 | | | |
| Cadmium | 0.979 | 0.025 | " | 1.0000 | | 97.9 | 85-115 | | | |
| Lead | 5.05 | 0.050 | " | 5.0000 | | 101 | 85-115 | | | |
| Selenium | 1.03 | 0.10 | " | 1.0000 | | 103 | 85-115 | | | |
| Silver | 0.104 | 0.025 | " | 0.10000 | | 104 | 85-115 | | | |

Matrix Spike (1604041-MS1)

Source: E161408-01

Prepared: 04/08/16 Analyzed: 05/03/16

EPA 200.8

| | | | | | | | | | | |
|----------|-------|------|------|---------|---------|------|--------|--|--|--|
| Arsenic | 19.5 | 0.20 | mg/L | 20.000 | 0.00115 | 97.4 | 70-130 | | | |
| Cadmium | 3.86 | 0.10 | " | 4.0000 | 0.0289 | 95.7 | 70-130 | | | |
| Lead | 20.2 | 0.20 | " | 20.000 | 0.373 | 99.2 | 70-130 | | | |
| Selenium | 4.36 | 0.40 | " | 4.0000 | 0.0131 | 109 | 70-130 | | | |
| Silver | 0.428 | 0.10 | " | 0.40000 | U | 107 | 70-130 | | | |

Matrix Spike Dup (1604041-MSD1)

Source: E161408-01

Prepared: 04/08/16 Analyzed: 05/03/16

EPA 200.8

| | | | | | | | | | | |
|----------|-------|------|------|---------|---------|------|--------|-------|----|--|
| Arsenic | 19.7 | 0.20 | mg/L | 20.000 | 0.00115 | 98.6 | 70-130 | 1.27 | 20 | |
| Cadmium | 3.80 | 0.10 | " | 4.0000 | 0.0289 | 94.2 | 70-130 | 1.52 | 20 | |
| Lead | 20.1 | 0.20 | " | 20.000 | 0.373 | 98.4 | 70-130 | 0.733 | 20 | |
| Selenium | 3.75 | 0.40 | " | 4.0000 | 0.0131 | 93.4 | 70-130 | 15.2 | 20 | |
| Silver | 0.416 | 0.10 | " | 0.40000 | U | 104 | 70-130 | 3.02 | 20 | |

MRL Verification (1604041-PS1)

Prepared: 04/08/16 Analyzed: 05/03/16

EPA 200.8

| | | | | | | | | | | |
|----------|----------|---------|------|------------|--|------|--------|--|--|----------|
| Arsenic | 0.000922 | 0.0010 | mg/L | 0.0010000 | | 92.2 | 65-135 | | | MRL-9, U |
| Cadmium | 0.000477 | 0.00050 | " | 0.00050000 | | 95.3 | 65-135 | | | MRL-9, U |
| Lead | 0.00101 | 0.0010 | " | 0.0010000 | | 101 | 65-135 | | | MRL-9 |
| Selenium | 0.00231 | 0.0020 | " | 0.0020000 | | 115 | 65-135 | | | MRL-9 |
| Silver | 0.000503 | 0.00050 | " | 0.00050000 | | 101 | 65-135 | | | MRL-9 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

TCLP Metals (TCLPM) - Quality Control

US-EPA, Region 4, SESD

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------------------------------|--------|--------------------|-------|---------------------------------------|---------------|------|-------------|-------|-----------|-------|
| Batch 1604147 - M 200.2 TCLP | | | | | | | | | | |
| Blank (1604147-BLK1) | | | | Prepared: 04/28/16 Analyzed: 05/04/16 | | | | | | |
| EPA 6010 | | | | | | | | | | |
| Barium | U | 0.0050 | mg/L | | | | | | | U |
| Chromium | U | 0.0050 | " | | | | | | | U |
| Silver | U | 0.0050 | " | | | | | | | U |
| Blank (1604147-BLK2) | | | | Prepared: 04/28/16 Analyzed: 05/04/16 | | | | | | |
| EPA 6010 | | | | | | | | | | |
| Barium | 0.0232 | 0.020 | mg/L | | | | | | | B-2 |
| Chromium | U | 0.020 | " | | | | | | | U |
| Silver | U | 0.020 | " | | | | | | | U |
| LCS (1604147-BS1) | | | | Prepared: 04/28/16 Analyzed: 05/04/16 | | | | | | |
| EPA 6010 | | | | | | | | | | |
| Barium | 4.83 | 0.015 | mg/L | 5.0000 | | 96.7 | 85-115 | | | |
| Chromium | 4.64 | 0.015 | " | 5.0000 | | 92.8 | 85-115 | | | |
| Silver | 0.0980 | 0.015 | " | 0.10000 | | 98.0 | 85-115 | | | |
| Matrix Spike (1604147-MS1) | | Source: E161408-03 | | Prepared: 04/28/16 Analyzed: 05/04/16 | | | | | | |
| EPA 6010 | | | | | | | | | | |
| Barium | 19.9 | 0.060 | mg/L | 20.000 | 0.451 | 97.2 | 75-125 | | | |
| Chromium | 17.8 | 0.060 | " | 20.000 | 0.00320 | 89.1 | 75-125 | | | |
| Silver | 0.393 | 0.060 | " | 0.40000 | U | 98.2 | 75-125 | | | |
| Matrix Spike Dup (1604147-MSD1) | | Source: E161408-03 | | Prepared: 04/28/16 Analyzed: 05/04/16 | | | | | | |
| EPA 6010 | | | | | | | | | | |
| Barium | 19.9 | 0.060 | mg/L | 20.000 | 0.451 | 97.4 | 75-125 | 0.217 | 25 | |
| Chromium | 18.4 | 0.060 | " | 20.000 | 0.00320 | 92.2 | 75-125 | 3.40 | 25 | |
| Silver | 0.410 | 0.060 | " | 0.40000 | U | 102 | 75-125 | 4.30 | 25 | |
| MRL Verification (1604147-PS1) | | | | Prepared: 04/28/16 Analyzed: 05/04/16 | | | | | | |
| EPA 6010 | | | | | | | | | | |
| Barium | 5.60 | | ug/L | 5.0000 | | 112 | 70-130 | | | MRL-9 |
| Chromium | 6.72 | | " | 5.0000 | | 134 | 70-130 | | | MRL-9 |
| Silver | 5.22 | | " | 5.0000 | | 104 | 70-130 | | | MRL-9 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

TCLP Metals (TCLPM) - Quality Control

US-EPA, Region 4, SESD

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

Batch 1604148 - M 200.2 TCLP

Blank (1604148-BLK1)

Prepared: 04/28/16 Analyzed: 05/03/16

EPA 200.8

| | | | | | | | | | | |
|----------|---|---------|------|--|--|--|--|--|--|---|
| Arsenic | U | 0.0010 | mg/L | | | | | | | U |
| Cadmium | U | 0.00050 | " | | | | | | | U |
| Lead | U | 0.0010 | " | | | | | | | U |
| Selenium | U | 0.0020 | " | | | | | | | U |
| Silver | U | 0.00050 | " | | | | | | | U |

Blank (1604148-BLK2)

Prepared: 04/28/16 Analyzed: 05/03/16

EPA 200.8

| | | | | | | | | | | |
|----------|---|--------|------|--|--|--|--|--|--|---|
| Arsenic | U | 0.0040 | mg/L | | | | | | | U |
| Cadmium | U | 0.0020 | " | | | | | | | U |
| Lead | U | 0.0040 | " | | | | | | | U |
| Selenium | U | 0.0080 | " | | | | | | | U |
| Silver | U | 0.0020 | " | | | | | | | U |

LCS (1604148-BS1)

Prepared: 04/28/16 Analyzed: 05/03/16

EPA 200.8

| | | | | | | | | | |
|----------|-------|-------|------|---------|--|------|--------|--|--|
| Arsenic | 4.83 | 0.050 | mg/L | 5.0000 | | 96.5 | 85-115 | | |
| Cadmium | 0.928 | 0.025 | " | 1.0000 | | 92.8 | 85-115 | | |
| Lead | 4.77 | 0.050 | " | 5.0000 | | 95.5 | 85-115 | | |
| Selenium | 0.965 | 0.10 | " | 1.0000 | | 96.5 | 85-115 | | |
| Silver | 0.102 | 0.025 | " | 0.10000 | | 102 | 85-115 | | |

Matrix Spike (1604148-MS1)

Source: E161408-03

Prepared: 04/28/16 Analyzed: 05/03/16

EPA 200.8

| | | | | | | | | | |
|----------|-------|------|------|---------|---------|------|--------|--|--|
| Arsenic | 19.3 | 0.20 | mg/L | 20.000 | 0.0136 | 96.6 | 70-130 | | |
| Cadmium | 3.78 | 0.10 | " | 4.0000 | 0.00153 | 94.5 | 70-130 | | |
| Lead | 19.6 | 0.20 | " | 20.000 | 0.201 | 97.1 | 70-130 | | |
| Selenium | 3.78 | 0.40 | " | 4.0000 | 0.0246 | 93.8 | 70-130 | | |
| Silver | 0.409 | 0.10 | " | 0.40000 | U | 102 | 70-130 | | |

Matrix Spike Dup (1604148-MSD1)

Source: E161408-03

Prepared: 04/28/16 Analyzed: 05/03/16

EPA 200.8

| | | | | | | | | | |
|----------|-------|------|------|---------|---------|------|--------|------|----|
| Arsenic | 20.1 | 0.20 | mg/L | 20.000 | 0.0136 | 101 | 70-130 | 4.12 | 20 |
| Cadmium | 3.86 | 0.10 | " | 4.0000 | 0.00153 | 96.4 | 70-130 | 2.00 | 20 |
| Lead | 20.1 | 0.20 | " | 20.000 | 0.201 | 99.4 | 70-130 | 2.25 | 20 |
| Selenium | 4.32 | 0.40 | " | 4.0000 | 0.0246 | 107 | 70-130 | 13.4 | 20 |
| Silver | 0.419 | 0.10 | " | 0.40000 | U | 105 | 70-130 | 2.35 | 20 |



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D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

TCLP Metals (TCLPM) - Quality Control

US-EPA, Region 4, SESD

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

Batch 1604148 - M 200.2 TCLP

MRL Verification (1604148-PS1)

Prepared: 04/28/16 Analyzed: 05/03/16

EPA 200.8

| | | | | | | | | | | |
|----------|-------|--|------|---------|--|------|--------|--|--|-------|
| Arsenic | 1.09 | | ug/L | 1.0000 | | 109 | 65-135 | | | MRL-9 |
| Cadmium | 0.517 | | " | 0.50000 | | 103 | 65-135 | | | MRL-9 |
| Lead | 0.985 | | " | 1.0000 | | 98.5 | 65-135 | | | MRL-9 |
| Selenium | 2.70 | | " | 2.0000 | | 135 | 65-135 | | | MRL-9 |
| Silver | 0.520 | | " | 0.50000 | | 104 | 65-135 | | | MRL-9 |

Batch 1605027 - M 245.1 TCLP extract

Blank (1605027-BLK1)

Prepared: 05/05/16 Analyzed: 05/06/16

EPA 245.1

| | | | | | | | | | | |
|---------|---|---------|------|--|--|--|--|--|--|---|
| Mercury | U | 0.00010 | mg/L | | | | | | | U |
|---------|---|---------|------|--|--|--|--|--|--|---|

Blank (1605027-BLK2)

Prepared: 05/05/16 Analyzed: 05/06/16

EPA 245.1

| | | | | | | | | | | |
|---------|---|---------|------|--|--|--|--|--|--|---|
| Mercury | U | 0.00010 | mg/L | | | | | | | U |
|---------|---|---------|------|--|--|--|--|--|--|---|

Blank (1605027-BLK3)

Prepared: 05/05/16 Analyzed: 05/06/16

EPA 245.1

| | | | | | | | | | | |
|---------|---|---------|------|--|--|--|--|--|--|---|
| Mercury | U | 0.00010 | mg/L | | | | | | | U |
|---------|---|---------|------|--|--|--|--|--|--|---|

Blank (1605027-BLK4)

Prepared: 05/05/16 Analyzed: 05/06/16

EPA 245.1

| | | | | | | | | | | |
|---------|---|---------|------|--|--|--|--|--|--|---|
| Mercury | U | 0.00010 | mg/L | | | | | | | U |
|---------|---|---------|------|--|--|--|--|--|--|---|

LCS (1605027-BS1)

Prepared: 05/05/16 Analyzed: 05/06/16

EPA 245.1

| | | | | | | | | | | |
|---------|-----------|---------|------|-----------|--|-----|--------|--|--|--|
| Mercury | 0.0041560 | 0.00010 | mg/L | 0.0040000 | | 104 | 85-115 | | | |
|---------|-----------|---------|------|-----------|--|-----|--------|--|--|--|

Matrix Spike (1605027-MS1)

Source: E161408-01

Prepared: 05/05/16 Analyzed: 05/06/16

EPA 245.1

| | | | | | | | | | | |
|---------|-----------|---------|------|-----------|---|-----|--------|--|--|--|
| Mercury | 0.0043860 | 0.00010 | mg/L | 0.0040000 | U | 110 | 75-125 | | | |
|---------|-----------|---------|------|-----------|---|-----|--------|--|--|--|



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980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

TCLP Metals (TCLPM) - Quality Control

US-EPA, Region 4, SESD

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|--------------------------------------|-----------|--------------------|-------|----------------|---------------------------------------|------|----------------|------|--------------|-------|
| Batch 1605027 - M 245.1 TCLP extract | | | | | | | | | | |
| Matrix Spike (1605027-MS2) | | Source: E161408-03 | | | Prepared: 05/05/16 Analyzed: 05/06/16 | | | | | |
| EPA 245.1 | | | | | | | | | | |
| Mercury | 0.0030500 | 0.00010 | mg/L | 0.0040000 | U | 76.2 | 75-125 | | | |
| Matrix Spike Dup (1605027-MSD1) | | Source: E161408-01 | | | Prepared: 05/05/16 Analyzed: 05/06/16 | | | | | |
| EPA 245.1 | | | | | | | | | | |
| Mercury | 0.0031640 | 0.00010 | mg/L | 0.0040000 | U | 79.1 | 75-125 | 32.4 | 200 | |
| Matrix Spike Dup (1605027-MSD2) | | Source: E161408-03 | | | Prepared: 05/05/16 Analyzed: 05/06/16 | | | | | |
| EPA 245.1 | | | | | | | | | | |
| Mercury | 0.0032520 | 0.00010 | mg/L | 0.0040000 | U | 81.3 | 75-125 | 6.41 | 200 | |
| MRL Verification (1605027-PS1) | | | | | Prepared: 05/05/16 Analyzed: 05/06/16 | | | | | |
| EPA 245.1 | | | | | | | | | | |
| Mercury | 0.081000 | | ug/L | 0.10000 | | 81.0 | 65-135 | | | MRL-9 |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Physical Properties (PHYSP) - Quality Control

US-EPA, Region 4, SESD

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|

Batch 1604073 - M % Solids

Duplicate (1604073-DUP1)

Source: E161408-10

Prepared: 04/15/16 Analyzed: 04/19/16

EPA 200.2

| | | | | | | |
|----------|--------|-----|---|---------------|-------|----|
| % Solids | 87.638 | 0.0 | % | after drying. | 0.534 | 10 |
|----------|--------|-----|---|---------------|-------|----|



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

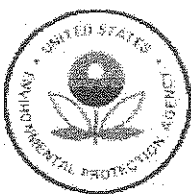
Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 16-0333

Project: 16-0333, Ortek, Inc. - Reported by Terri White

Notes and Definitions for QC Samples

| | |
|-------|---|
| U | The analyte was not detected at or above the reporting limit. |
| B-2 | Reporting level elevated due to trace amounts of analyte present in the method blank. |
| B-3 | Level in blank does not impact data quality |
| MRL-3 | MRL verification for Soil matrix |
| MRL-6 | MRL verification for Waste matrix |
| MRL-9 | MRL verification for TCLP matrix |
| QC-2 | Analyte concentration high in continuing calibration verification standard |
| QC-5 | Calibration check standard less than method control limits. |
| QC-6 | Calibration check standard greater than method control limits. |
| QM-1 | Matrix Spike Recovery less than method control limits |
| QM-2 | Matrix Spike Recovery greater than method control limits |
| QM-3 | Matrix Spike Precision outside method control limits |
| QR-2 | MRL verification recovery greater than upper control limits. |
| XB-1 | Carryover from high level sample |
| XM-1 | Sample background/spike ratio higher than method evaluation criteria |



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CHICAGO REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605



LABORATORY
ACCREDITATION
BUREAU

ACCREDITED ISO/IEC 17025

Certificate # L2280 Testing

Date: 5/13/2016

Subject: Review of Region 5 Data for Ortek

To: RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604

From: Edgar Santiago, Analyst
US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with EPA's *Guidance on Environmental Data Verification and Data Validation* (Document EPA QA/G-8), CRL verified and validated the data but does not perform data quality assessment based on project plans.

This report was reviewed and the information provided herein accurately represents the analysis performed.

X _____

Please contact the analyst with any technical report issues, Robert Thompson at (312)-353-9078 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.

Attached are Results for: Ortek

Data Management Coordinator and Date Transmitted

Analyses included in this report:

PCB by ASE



Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-13-16 12:07

ANALYSIS CASE NARRATIVE

Analyst Phone Number: 312-353-5521

GENERAL INFORMATION:

Eleven (11) soil samples collected for PCB analyses were received at the Chicago Regional Laboratory (CRL) on 03/31/2016. The samples were checked out from the CRL sample custodian and extracted on 04/07/2016. Extraction and analyses holding times were met.

SAMPLE ANALYSIS:

The samples were extracted by Accelerated Solvent Extraction (ASE) in accordance with CRL Standard Operating Procedure (CRL.SOP) GC013: Version 1. (EPA Method 3545)

Florisil clean-up was performed on the sample extracts in accordance with CRL Standard Operating Procedure (CRL.SOP) GC015: Version 2. (EPA Method 3620B)

Sulfur clean-up was performed on the sample extracts in accordance with CRL Standard Operating Procedure (CRL.SOP) GC019: Version 2. (EPA Method 3660B)

Acid clean-up was performed on the sample extracts in accordance with CRL Standard Operating Procedure (CRL.SOP) GC016: Version 2. (EPA Method 3665A)

The samples were analyzed on GC#4 for PCB using CRL Standard Operating Procedure (CRL.SOP) GC002: Version 2. (EPA Method 8082A)

The data reported herein meet the Data Quality Objectives referenced in the Ortek QAPP SAP HASP 3-10-16.

Regardless of the cleanup steps, matrix interferences and an elevated baseline was observed where PCB 1260 normally elutes in the chromatogram for all of the samples. The results that were reported are based on peaks found that could be attributed to PCB 1016 and PCB 1260.

Please see LIMS report for final results.

QUALITY CONTROL (QC):

All required quality control criteria for the laboratory, method, and system performance audits were evaluated



Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
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RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

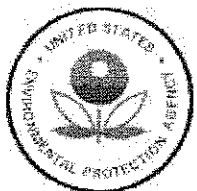
Reported:
May-13-16 12:07

and determined to be within CRLs QC limits with the following exceptions:

TCMX/ DCB surrogate recoveries for CRL sample # 1603050-05 were above the CRL QC limits (Limits: 44.5-129% for TCMX and 38.2-157% for DCB). The sample result was qualified as biased high (K)

The remaining samples, including the MS/MSD, had DCB recoveries above the CRL QC limits (38.2-157%) because of matrix interferences. Those samples were not qualified on this basis since one of the two surrogates had acceptable recoveries.

MS/MSD recoveries for PCB 1260 did not meet the CRL QC limits (43.7-152%) because of matrix interferences. The source sample result, 1603050-01, was qualified as estimated and could be biased high. (J, K).



Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-13-16 12:07

ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|------------|---------------|--------|-----------------|-----------------|
| 3301601 | 1603050-01 | Soil | Mar-30-16 13:40 | Mar-31-16 10:15 |
| 3301602 | 1603050-02 | Soil | Mar-30-16 14:02 | Mar-31-16 10:15 |
| 3301603 | 1603050-03 | Soil | Mar-30-16 14:20 | Mar-31-16 10:15 |
| 3301604 | 1603050-04 | Soil | Mar-30-16 14:30 | Mar-31-16 10:15 |
| 3301605 | 1603050-05 | Soil | Mar-30-16 14:40 | Mar-31-16 10:15 |
| 3301606 | 1603050-06 | Soil | Mar-30-16 15:21 | Mar-31-16 10:15 |
| 3301607 | 1603050-07 | Soil | Mar-30-16 15:36 | Mar-31-16 10:15 |
| 3301608 | 1603050-08 | Soil | Mar-30-16 15:47 | Mar-31-16 10:15 |
| 3301609 | 1603050-09 | Soil | Mar-30-16 16:04 | Mar-31-16 10:15 |
| 3301610 | 1603050-10 | Soil | Mar-30-16 16:14 | Mar-31-16 10:15 |
| 3301610DUP | 1603050-11 | Soil | Mar-30-16 16:29 | Mar-31-16 10:15 |



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Chicago Regional Laboratory

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RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-13-16 12:07

PCB by GC/ECD, EPA 8082 A (modified)
US EPA Region 5 Chicago Regional Laboratory

3301601 (1603050-01) Soil Sampled: Mar-30-16 13:40 Received: Mar-31-16 10:15

Qualifiers: J, K

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------|--------|-----------------------|-----|--------------------|----------|----------|---------|-----------|-----------|
| PCB-1016 | 0.622 | | | 0.113 | ug/g dry | 1 | B16D011 | Apr-07-16 | Apr-25-16 |
| PCB-1221 | U | U | | 0.113 | " | " | " | " | " |
| PCB-1232 | U | U | | 0.113 | " | " | " | " | " |
| PCB-1242 | U | U | | 0.113 | " | " | " | " | " |
| PCB-1248 | U | U | | 0.113 | " | " | " | " | " |
| PCB-1254 | U | U | | 0.113 | " | " | " | " | " |
| PCB-1260 | 4.17 | | | 0.226 | " | 2 | " | " | Apr-27-16 |
| PCB-1262 | U | U | | 0.113 | " | 1 | " | " | Apr-25-16 |
| PCB-1268 | U | U | | 0.113 | " | " | " | " | " |

| Surogate | Result | | %REC | %REC Limits | Batch | Prepared | Analyzed |
|------------------------------------|--------|-------|-------|----------------|-------|----------|----------|
| Surrogate: Tetrachloro-meta-xylene | 0.0192 | | 85.0% | 44.5-129 | " | " | " |
| Surrogate: Decachlorobiphenyl | 0.00 | MI, U | % | 38.2-157 | " | " | " |

3301602 (1603050-02) Soil Sampled: Mar-30-16 14:02 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------|--------|-----------------------|-----|--------------------|----------|----------|---------|-----------|-----------|
| PCB-1016 | 0.324 | | | 0.111 | ug/g dry | 1 | B16D011 | Apr-07-16 | Apr-25-16 |
| PCB-1221 | U | U | | 0.111 | " | " | " | " | " |
| PCB-1232 | U | U | | 0.111 | " | " | " | " | " |
| PCB-1242 | U | U | | 0.111 | " | " | " | " | " |
| PCB-1248 | U | U | | 0.111 | " | " | " | " | " |
| PCB-1254 | U | U | | 0.111 | " | " | " | " | " |
| PCB-1260 | 9.53 | | | 1.11 | " | 10 | " | " | May-05-16 |
| PCB-1262 | U | U | | 0.111 | " | 1 | " | " | Apr-25-16 |
| PCB-1268 | U | U | | 0.111 | " | " | " | " | " |

| Surogate | Result | | %REC | %REC Limits | Batch | Prepared | Analyzed |
|------------------------------------|--------|----|-------|----------------|-------|----------|-----------|
| Surrogate: Tetrachloro-meta-xylene | 0.0223 | | 100% | 44.5-129 | " | " | May-05-16 |
| Surrogate: Decachlorobiphenyl | 1.24 | MI | 5550% | 38.2-157 | " | " | " |



Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-13-16 12:07

PCB by GC/ECD, EPA 8082 A (modified)
US EPA Region 5 Chicago Regional Laboratory

3301603 (1603050-03) Soil Sampled: Mar-30-16 14:20 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------|--------|-----------------------|-----|--------------------|----------|----------|---------|-----------|-----------|
| PCB-1016 | 1.02 | | | 0.123 | ug/g dry | 1 | B16D011 | Apr-07-16 | Apr-25-16 |
| PCB-1221 | U | U | | 0.123 | " | " | " | " | " |
| PCB-1232 | U | U | | 0.123 | " | " | " | " | " |
| PCB-1242 | U | U | | 0.123 | " | " | " | " | " |
| PCB-1248 | U | U | | 0.123 | " | " | " | " | " |
| PCB-1254 | U | U | | 0.123 | " | " | " | " | " |
| PCB-1260 | 24.0 | | | 1.23 | " | 10 | " | " | May-05-16 |
| PCB-1262 | U | U | | 0.123 | " | 1 | " | " | Apr-25-16 |
| PCB-1268 | U | U | | 0.123 | " | " | " | " | " |

| Surrogate | Result | | %REC | %REC Limits | Batch | Prepared | Analyzed |
|------------------------------------|--------|-------|------|----------------|-------|----------|-----------|
| Surrogate: Tetrachloro-meta-xylene | 0.0245 | | 100% | 44.5-129 | " | " | May-05-16 |
| Surrogate: Decachlorobiphenyl | 0.00 | MI, U | % | 38.2-157 | " | " | Apr-25-16 |

3301604 (1603050-04) Soil Sampled: Mar-30-16 14:30 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------|--------|-----------------------|-----|--------------------|----------|----------|---------|-----------|-----------|
| PCB-1016 | 0.876 | | | 0.232 | ug/g dry | 2 | B16D011 | Apr-07-16 | Apr-25-16 |
| PCB-1221 | U | U | | 0.116 | " | 1 | " | " | " |
| PCB-1232 | U | U | | 0.116 | " | " | " | " | " |
| PCB-1242 | U | U | | 0.116 | " | " | " | " | " |
| PCB-1248 | U | U | | 0.116 | " | " | " | " | " |
| PCB-1254 | U | U | | 0.116 | " | " | " | " | " |
| PCB-1260 | 9.10 | | | 1.16 | " | 10 | " | " | May-05-16 |
| PCB-1262 | U | U | | 0.116 | " | 1 | " | " | Apr-25-16 |
| PCB-1268 | U | U | | 0.116 | " | " | " | " | " |

| Surrogate | Result | | %REC | %REC Limits | Batch | Prepared | Analyzed |
|------------------------------------|--------|----|-------|----------------|-------|----------|-----------|
| Surrogate: Tetrachloro-meta-xylene | 0.0232 | | 100% | 44.5-129 | " | " | May-05-16 |
| Surrogate: Decachlorobiphenyl | 0.243 | MI | 1050% | 38.2-157 | " | " | " |



Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone: (312) 353-8370 Fax: (312) 886-2591

RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-13-16 12:07

PCB by GC/ECD, EPA 8082 A (modified)
US EPA Region 5 Chicago Regional Laboratory

3301605 (1603050-05) Soil Sampled: Mar-30-16 14:40 Received: Mar-31-16 10:15

Qualifiers: K

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------|--------|-----------------------|-----|--------------------|----------|----------|---------|-----------|-----------|
| PCB-1016 | 1.36 | | | 0.225 | ug/g dry | 2 | B16D011 | Apr-07-16 | Apr-25-16 |
| PCB-1221 | U | U | | 0.112 | " | 1 | " | " | " |
| PCB-1232 | U | U | | 0.112 | " | " | " | " | " |
| PCB-1242 | U | U | | 0.112 | " | " | " | " | " |
| PCB-1248 | U | U | | 0.112 | " | " | " | " | " |
| PCB-1254 | U | U | | 0.112 | " | " | " | " | " |
| PCB-1260 | 11.0 | | | 1.12 | " | 10 | " | " | Apr-27-16 |
| PCB-1262 | U | U | | 0.112 | " | 1 | " | " | Apr-25-16 |
| PCB-1268 | U | U | | 0.112 | " | " | " | " | " |

| Surrogate | Result | | %REC | %REC Limits | Batch | Prepared | Analyzed |
|------------------------------------|--------|----|-------|----------------|-------|----------|-----------|
| Surrogate: Tetrachloro-meta-xylene | 0.0337 | MI | 150% | 44.5-129 | " | " | Apr-27-16 |
| Surrogate: Decachlorobiphenyl | 0.370 | MI | 1650% | 38.2-157 | " | " | " |

3301606 (1603050-06) Soil Sampled: Mar-30-16 15:21 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------|--------|-----------------------|-----|--------------------|----------|----------|---------|-----------|-----------|
| PCB-1016 | 0.415 | | | 0.110 | ug/g dry | 1 | B16D011 | Apr-07-16 | Apr-25-16 |
| PCB-1221 | U | U | | 0.110 | " | " | " | " | " |
| PCB-1232 | U | U | | 0.110 | " | " | " | " | " |
| PCB-1242 | U | U | | 0.110 | " | " | " | " | " |
| PCB-1248 | U | U | | 0.110 | " | " | " | " | " |
| PCB-1254 | U | U | | 0.110 | " | " | " | " | " |
| PCB-1260 | 2.36 | | | 0.220 | " | 2 | " | " | Apr-27-16 |
| PCB-1262 | U | U | | 0.110 | " | 1 | " | " | Apr-25-16 |
| PCB-1268 | U | U | | 0.110 | " | " | " | " | " |

| Surrogate | Result | | %REC | %REC Limits | Batch | Prepared | Analyzed |
|------------------------------------|--------|-------|------|----------------|-------|----------|-----------|
| Surrogate: Tetrachloro-meta-xylene | 0.0242 | | 110% | 44.5-129 | " | " | Apr-27-16 |
| Surrogate: Decachlorobiphenyl | 0.00 | MI, U | % | 38.2-157 | " | " | " |



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Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-13-16 12:07

PCB by GC/ECD, EPA 8082 A (modified)
US EPA Region 5 Chicago Regional Laboratory

3301607 (1603050-07) Soil Sampled: Mar-30-16 15:36 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------|--------|-----------------------|-----|--------------------|----------|----------|---------|-----------|-----------|
| PCB-1016 | 0.280 | | | 0.116 | ug/g dry | 1 | B16D011 | Apr-07-16 | Apr-25-16 |
| PCB-1221 | U | U | | 0.116 | " | " | " | " | " |
| PCB-1232 | U | U | | 0.116 | " | " | " | " | " |
| PCB-1242 | U | U | | 0.116 | " | " | " | " | " |
| PCB-1248 | U | U | | 0.116 | " | " | " | " | " |
| PCB-1254 | U | U | | 0.116 | " | " | " | " | " |
| PCB-1260 | 1.27 | | | 0.232 | " | 2 | " | " | Apr-27-16 |
| PCB-1262 | U | U | | 0.116 | " | 1 | " | " | Apr-25-16 |
| PCB-1268 | U | U | | 0.116 | " | " | " | " | " |

| Surogate | Result | | %REC | %REC Limits | Batch | Prepared | Analyzed |
|------------------------------------|--------|-------|------|----------------|-------|----------|-----------|
| Surrogate: Tetrachloro-meta-xylene | 0.0232 | | 100% | 44.5-129 | " | " | Apr-27-16 |
| Surrogate: Decachlorobiphenyl | 0.00 | MI, U | % | 38.2-157 | " | " | " |

3301608 (1603050-08) Soil Sampled: Mar-30-16 15:47 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------|--------|-----------------------|-----|--------------------|----------|----------|---------|-----------|-----------|
| PCB-1016 | U | U | | 0.112 | ug/g dry | 1 | B16D011 | Apr-07-16 | Apr-25-16 |
| PCB-1221 | U | U | | 0.112 | " | " | " | " | " |
| PCB-1232 | U | U | | 0.112 | " | " | " | " | " |
| PCB-1242 | U | U | | 0.112 | " | " | " | " | " |
| PCB-1248 | U | U | | 0.112 | " | " | " | " | " |
| PCB-1254 | U | U | | 0.112 | " | " | " | " | " |
| PCB-1260 | 9.94 | | | 1.12 | " | 10 | " | " | May-05-16 |
| PCB-1262 | U | U | | 0.112 | " | 1 | " | " | Apr-25-16 |
| PCB-1268 | U | U | | 0.112 | " | " | " | " | " |

| Surogate | Result | | %REC | %REC Limits | Batch | Prepared | Analyzed |
|------------------------------------|--------|-------|------|----------------|-------|----------|-----------|
| Surrogate: Tetrachloro-meta-xylene | 0.0236 | | 105% | 44.5-129 | " | " | Apr-26-16 |
| Surrogate: Decachlorobiphenyl | 0.00 | MI, U | % | 38.2-157 | " | " | " |



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Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-13-16 12:07

PCB by GC/ECD, EPA 8082 A (modified)
US EPA Region 5 Chicago Regional Laboratory

3301609 (1603050-09) Soil Sampled: Mar-30-16 16:04 Received: Mar-31-16 10:15

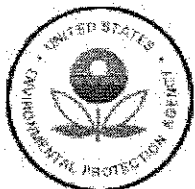
| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------|--------|-----------------------|-----|--------------------|----------|----------|---------|-----------|-----------|
| PCB-1016 | 0.291 | | | 0.113 | ug/g dry | 1 | B16D011 | Apr-07-16 | Apr-26-16 |
| PCB-1221 | U | U | | 0.113 | " | " | " | " | Apr-25-16 |
| PCB-1232 | U | U | | 0.113 | " | " | " | " | " |
| PCB-1242 | U | U | | 0.113 | " | " | " | " | " |
| PCB-1248 | U | U | | 0.113 | " | " | " | " | " |
| PCB-1254 | U | U | | 0.113 | " | " | " | " | " |
| PCB-1260 | 10.3 | | | 1.13 | " | 10 | " | " | May-05-16 |
| PCB-1262 | U | U | | 0.113 | " | 1 | " | " | Apr-25-16 |
| PCB-1268 | U | U | | 0.113 | " | " | " | " | " |

| Surogate | Result | | %REC | %REC Limits | Batch | Prepared | Analyzed |
|------------------------------------|--------|-------|-------|----------------|-------|----------|-----------|
| Surrogate: Tetrachloro-meta-xylene | 0.0113 | | 50.0% | 44.5-129 | " | " | May-05-16 |
| Surrogate: Decachlorobiphenyl | 0.00 | MI, U | % | 38.2-157 | " | " | " |

3301610 (1603050-10) Soil Sampled: Mar-30-16 16:14 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------|--------|-----------------------|-----|--------------------|----------|----------|---------|-----------|-----------|
| PCB-1016 | 0.964 | | | 0.223 | ug/g dry | 2 | B16D011 | Apr-07-16 | Apr-27-16 |
| PCB-1221 | U | U | | 0.112 | " | 1 | " | " | Apr-25-16 |
| PCB-1232 | U | U | | 0.112 | " | " | " | " | " |
| PCB-1242 | U | U | | 0.112 | " | " | " | " | " |
| PCB-1248 | U | U | | 0.112 | " | " | " | " | " |
| PCB-1254 | U | U | | 0.112 | " | " | " | " | " |
| PCB-1260 | 2.21 | | | 0.223 | " | 2 | " | " | Apr-27-16 |
| PCB-1262 | U | U | | 0.112 | " | 1 | " | " | Apr-25-16 |
| PCB-1268 | U | U | | 0.112 | " | " | " | " | " |

| Surogate | Result | | %REC | %REC Limits | Batch | Prepared | Analyzed |
|------------------------------------|--------|--|-------|----------------|-------|----------|-----------|
| Surrogate: Tetrachloro-meta-xylene | 0.0290 | | 130% | 44.5-129 | " | " | Apr-27-16 |
| Surrogate: Decachlorobiphenyl | 0.0179 | | 80.0% | 38.2-157 | " | " | " |



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Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-13-16 12:07

PCB by GC/ECD, EPA 8082 A (modified)
US EPA Region 5 Chicago Regional Laboratory

3301610DUP (1603050-11) Soil Sampled: Mar-30-16 16:29 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------|--------|-----------------------|-----|--------------------|----------|----------|---------|-----------|-----------|
| PCB-1016 | 1.06 | | | 0.222 | ug/g dry | 2 | B16D011 | Apr-07-16 | Apr-27-16 |
| PCB-1221 | U | U | | 0.111 | " | 1 | " | " | Apr-25-16 |
| PCB-1232 | U | U | | 0.111 | " | " | " | " | " |
| PCB-1242 | U | U | | 0.111 | " | " | " | " | " |
| PCB-1248 | U | U | | 0.111 | " | " | " | " | " |
| PCB-1254 | U | U | | 0.111 | " | " | " | " | " |
| PCB-1260 | 4.04 | | | 0.222 | " | 2 | " | " | Apr-27-16 |
| PCB-1262 | U | U | | 0.111 | " | 1 | " | " | Apr-25-16 |
| PCB-1268 | U | U | | 0.111 | " | " | " | " | " |

| Surrogate | Result | | %REC | %REC Limits | Batch | Prepared | Analyzed |
|------------------------------------|--------|-------|------|----------------|-------|----------|-----------|
| Surrogate: Tetrachloro-meta-xylene | 0.0255 | | 115% | 44.5-129 | " | " | Apr-26-16 |
| Surrogate: Decachlorobiphenyl | 0.00 | MI, U | % | 38.2-157 | " | " | " |



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Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-13-16 12:07

PCB by GC/ECD, EPA 8082 A (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B16D011 - EPA 3545

Blank (B16D011-BLK1)

Prepared: Apr-07-16 Analyzed: Apr-25-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|------------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------------|-----|--------------|
| PCB-1016 | U | U | | 0.100 | ug/g | | | | | | |
| PCB-1221 | U | U | | 0.100 | " | | | | | | |
| PCB-1232 | U | U | | 0.100 | " | | | | | | |
| PCB-1242 | U | U | | 0.100 | " | | | | | | |
| PCB-1248 | U | U | | 0.100 | " | | | | | | |
| PCB-1254 | U | U | | 0.100 | " | | | | | | |
| PCB-1260 | U | U | | 0.100 | " | | | | | | |
| PCB-1262 | U | U | | 0.100 | " | | | | | | |
| PCB-1268 | U | U | | 0.100 | " | | | | | | |
| Surrogate: Tetrachloro-meta-xylene | 0.0180 | | | | " | 2.000E-2 | | 90.0% | 44.5-129 | | |
| Surrogate: Decachlorobiphenyl | 0.0190 | | | | " | 2.000E-2 | | 95.0% | 38.2-157 | | |

LCS (B16D011-BS1)

Prepared: Apr-07-16 Analyzed: Apr-25-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|------------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------------|-----|--------------|
| PCB-1016 | 1.02 | | | 0.100 | ug/g | 1.000 | | 102% | 55.7-133 | | |
| PCB-1260 | 0.988 | | | 0.100 | " | 1.000 | | 98.8% | 64.1-130 | | |
| Surrogate: Tetrachloro-meta-xylene | 0.0190 | | | | " | 2.000E-2 | | 95.0% | 44.5-129 | | |
| Surrogate: Decachlorobiphenyl | 0.0190 | | | | " | 2.000E-2 | | 95.0% | 38.2-157 | | |

LCS Dup (B16D011-BSD1)

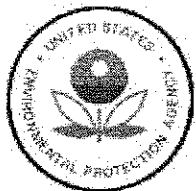
Prepared: Apr-07-16 Analyzed: Apr-25-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|------------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------------|------|--------------|
| PCB-1016 | 1.04 | | | 0.100 | ug/g | 1.000 | | 104% | 55.7-133 | 1.84 | 30 |
| PCB-1260 | 1.05 | | | 0.100 | " | 1.000 | | 105% | 64.1-130 | 5.80 | 30 |
| Surrogate: Tetrachloro-meta-xylene | 0.0190 | | | | " | 2.000E-2 | | 95.0% | 44.5-129 | | |
| Surrogate: Decachlorobiphenyl | 0.0200 | | | | " | 2.000E-2 | | 100% | 38.2-157 | | |

MRL Check (B16D011-MRL1)

Prepared: Apr-07-16 Analyzed: Apr-25-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|
|---------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|



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Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-13-16 12:07

PCB by GC/ECD, EPA 8082 A (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B16D011 - EPA 3545

MRL Check (B16D011-MRL1)

Prepared: Apr-07-16 Analyzed: Apr-25-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | Limits | RPD | RPD Limit |
|------------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------|-----|--------------|
| PCB-1016 | 0.109 | | | 0.100 | ug/g | 0.1000 | | 109% | 55.7-133 | | |
| PCB-1260 | 0.116 | | | 0.100 | " | 0.1000 | | 116% | 64.1-130 | | |
| Surrogate: Tetrachloro-meta-xylene | 0.0180 | | | | " | 2.000E-2 | | 90.0% | 44.5-129 | | |
| Surrogate: Decachlorobiphenyl | 0.0190 | | | | " | 2.000E-2 | | 95.0% | 38.2-157 | | |

Matrix Spike (B16D011-MS1)

Source: 1603050-01

Prepared: Apr-07-16 Analyzed: Apr-25-16

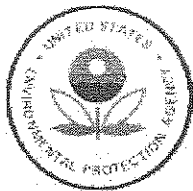
| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | Limits | RPD | RPD Limit |
|------------------------------------|---------|-----------------------|-----|--------------------|----------|----------------|------------------|-------|----------|-----|--------------|
| PCB-1016 | 1.50 | | | 0.111 | ug/g dry | 1.112 | 0.622 | 79.3% | 58.8-140 | | |
| PCB-1260 | 4.60 | | | 1.11 | " | 1.112 | 4.17 | 38.9% | 43.7-152 | | |
| Surrogate: Tetrachloro-meta-xylene | 0.0189 | | | | " | 2.224E-2 | | 85.0% | 44.5-129 | | |
| Surrogate: Decachlorobiphenyl | 7.78E-3 | MI | | | " | 2.224E-2 | | 35.0% | 38.2-157 | | |

Matrix Spike Dup (B16D011-MSD1)

Source: 1603050-01

Prepared: Apr-07-16 Analyzed: Apr-25-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | Limits | RPD | RPD Limit |
|------------------------------------|--------|-----------------------|-----|--------------------|----------|----------------|------------------|-------|----------|------|--------------|
| PCB-1016 | 1.60 | | | 0.111 | ug/g dry | 1.115 | 0.622 | 87.6% | 58.8-140 | 6.10 | 30 |
| PCB-1260 | 6.49 | | | 1.11 | " | 1.115 | 4.17 | 208% | 43.7-152 | 34.0 | 30 |
| Surrogate: Tetrachloro-meta-xylene | 0.0212 | | | | " | 2.230E-2 | | 95.0% | 44.5-129 | | |
| Surrogate: Decachlorobiphenyl | 0.00 | MI, U | | | " | 2.230E-2 | | % | 38.2-157 | | |



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Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-13-16 12:07

Notes and Definitions

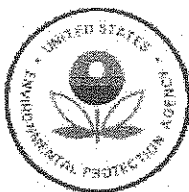
MI Matrix interference

K The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value.

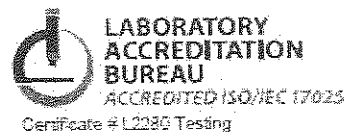
J The identification of the analyte is acceptable; the reported value is an estimate.

U Not Detected

NR Not Reported



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5 CHICAGO REGIONAL LABORATORY
536 SOUTH CLARK STREET
CHICAGO, ILLINOIS 60605



Date: 5/13/2016
Subject: Review of Region 5 Data for Ortek
To: RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604
From: Michelle Kerr, Chemist
US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with EPA's *Guidance on Environmental Data Verification and Data Validation* (Document EPA QA/G-8), CRL verified and validated the data but does not perform data quality assessment based on project plans.

This report was reviewed and the information provided herein accurately represents the analysis performed.

X _____

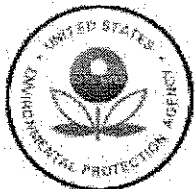
Please contact the analyst with any technical report issues, Robert Thompson at (312)-353-9078 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.

Attached are Results for: Ortek

Data Management Coordinator and Date Transmitted

Analyses included in this report:

TCLP/ZHE VOLATILES



Environmental Protection Agency Region 5
Chicago Regional Laboratory

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77 West Jackson Boulevard
Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-13-16 13:18

General Information

Eleven samples were received on March 31, 2016 and analyzed April 13, 2016 for volatile organic compounds (VOC). All holding times were met. The designated analyst for these samples, Michelle Kerr, can be reached at (312) 886-8961.

Sample Analysis and Results

Sample preparation and analysis occurred via the Chicago Regional Laboratory (CRL) standard operating procedure (SOP) GEN019 v. 3 (based on EPA Method 1311) and MS023 v.3 (based on EPA Method 8260C) for VOC in water. Data were reviewed according to CRL SOP GEN009 v. 2: Review of Volatile Organic Compound Analysis by Gas Chromatography/Mass Spectrometry.

The data quality objectives for this project were to report results at or below the TCLP regulatory levels as specified in the document "Ortek QAPP SAP HASP 3-10-16.pdf". The data reported herein meet the data quality objectives.

No target compounds were detected in the leachate from the samples above regulatory limits.

Quality Control

All Quality Control (QC) audits were within CRL limits for the analytes or did not result in qualification of the data except for the following:

Matrix Spike

Neither the matrix spike or duplicate showed results within control limits. Non-detect results in the source sample are qualified as estimated.



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Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-13-16 13:18

ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|------------|---------------|--------|-----------------|-----------------|
| 3301601 | 1603050-01 | Soil | Mar-30-16 13:40 | Mar-31-16 10:15 |
| 3301602 | 1603050-02 | Soil | Mar-30-16 14:02 | Mar-31-16 10:15 |
| 3301603 | 1603050-03 | Soil | Mar-30-16 14:20 | Mar-31-16 10:15 |
| 3301604 | 1603050-04 | Soil | Mar-30-16 14:30 | Mar-31-16 10:15 |
| 3301605 | 1603050-05 | Soil | Mar-30-16 14:40 | Mar-31-16 10:15 |
| 3301606 | 1603050-06 | Soil | Mar-30-16 15:21 | Mar-31-16 10:15 |
| 3301607 | 1603050-07 | Soil | Mar-30-16 15:36 | Mar-31-16 10:15 |
| 3301608 | 1603050-08 | Soil | Mar-30-16 15:47 | Mar-31-16 10:15 |
| 3301609 | 1603050-09 | Soil | Mar-30-16 16:04 | Mar-31-16 10:15 |
| 3301610 | 1603050-10 | Soil | Mar-30-16 16:14 | Mar-31-16 10:15 |
| 3301610DUP | 1603050-11 | Soil | Mar-30-16 16:29 | Mar-31-16 10:15 |



Environmental Protection Agency Region 5
Chicago Regional Laboratory

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Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-13-16 13:18

Volatiles by GC/MS, EPA 8260C (modified)
US EPA Region 5 Chicago Regional Laboratory

3301601 (1603050-01) Soil Sampled: Mar-30-16 13:40 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Vinyl chloride | U | J | | 1.00 | ug/L | 1 | B16D026 | Apr-05-16 | Apr-13-16 |
| 1,1-Dichloroethene | U | J | | 2.50 | " | " | " | " | " |
| 2-Butanone | U | J | | 5.00 | " | " | " | " | " |
| Chloroform | U | J | | 1.00 | " | " | " | " | " |
| Carbon tetrachloride | U | J | | 2.50 | " | " | " | " | " |
| Benzene | U | J | | 1.00 | " | " | " | " | " |
| 1,2-Dichloroethane | U | J | | 1.00 | " | " | " | " | " |
| Trichloroethene | U | J | | 1.00 | " | " | " | " | " |
| Tetrachloroethene | U | J | | 2.50 | " | " | " | " | " |
| Chlorobenzene | U | J | | 1.00 | " | " | " | " | " |
| 1,4-Dichlorobenzene | U | J | | 2.50 | " | " | " | " | " |

| Surogate | Result | %REC | %REC Limits | Batch | Prepared | Analyzed |
|----------------------------------|--------|-------|----------------|-------|----------|----------|
| Surrogate: Dibromofluoromethane | 8.83 | 88.3% | 75-125 | " | " | " |
| Surrogate: 1,2-Dichloroethane-d4 | 10.2 | 102% | 75-125 | " | " | " |
| Surrogate: Toluene-d8 | 9.29 | 92.9% | 75-125 | " | " | " |
| Surrogate: 4-Bromofluorobenzene | 9.46 | 94.6% | 75-125 | " | " | " |

3301602 (1603050-02) Soil Sampled: Mar-30-16 14:02 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Vinyl chloride | U | | | 1.00 | ug/L | 1 | B16D026 | Apr-05-16 | Apr-13-16 |
| 1,1-Dichloroethene | U | | | 2.50 | " | " | " | " | " |
| 2-Butanone | U | | | 5.00 | " | " | " | " | " |
| Chloroform | U | | | 1.00 | " | " | " | " | " |
| Carbon tetrachloride | U | | | 2.50 | " | " | " | " | " |
| Benzene | 12.3 | | | 1.00 | " | " | " | " | " |
| 1,2-Dichloroethane | U | | | 1.00 | " | " | " | " | " |
| Trichloroethene | 3.35 | | | 1.00 | " | " | " | " | " |
| Tetrachloroethene | 8.47 | | | 2.50 | " | " | " | " | " |
| Chlorobenzene | U | | | 1.00 | " | " | " | " | " |
| 1,4-Dichlorobenzene | U | | | 2.50 | " | " | " | " | " |

| Surogate | Result | %REC | %REC Limits | Batch | Prepared | Analyzed |
|---------------------------------|--------|-------|----------------|-------|----------|----------|
| Surrogate: Dibromofluoromethane | 8.91 | 89.1% | 75-125 | " | " | " |



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May-13-16 13:18

Volatiles by GC/MS, EPA 8260C (modified)
US EPA Region 5 Chicago Regional Laboratory

3301602 (1603050-02) Soil Sampled: Mar-30-16 14:02 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------------------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Surrogate: 1,2-Dichloroethane-d4 | 10.0 | | | 100% | | 75-125 | B16D026 | Apr-05-16 | Apr-13-16 |
| Surrogate: Toluene-d8 | 9.35 | | | 93.5% | | 75-125 | " | " | " |
| Surrogate: 4-Bromofluorobenzene | 10.2 | | | 102% | | 75-125 | " | " | " |

3301603 (1603050-03) Soil Sampled: Mar-30-16 14:20 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Vinyl chloride | 3.15 | | | 1.00 | ug/L | 1 | B16D026 | Apr-05-16 | Apr-13-16 |
| 1,1-Dichloroethene | U | | | 2.50 | " | " | " | " | " |
| 2-Butanone | U | | | 5.00 | " | " | " | " | " |
| Chloroform | U | | | 1.00 | " | " | " | " | " |
| Carbon tetrachloride | U | | | 2.50 | " | " | " | " | " |
| Benzene | 11.0 | | | 1.00 | " | " | " | " | " |
| 1,2-Dichloroethane | U | | | 1.00 | " | " | " | " | " |
| Trichloroethene | U | | | 1.00 | " | " | " | " | " |
| Tetrachloroethene | U | | | 2.50 | " | " | " | " | " |
| Chlorobenzene | U | | | 1.00 | " | " | " | " | " |
| 1,4-Dichlorobenzene | U | | | 2.50 | " | " | " | " | " |

| Surrogate | Result | %REC | %REC Limits | Batch | Prepared | Analyzed |
|----------------------------------|--------|-------|----------------|-------|----------|----------|
| Surrogate: Dibromofluoromethane | 8.90 | 89.0% | 75-125 | " | " | " |
| Surrogate: 1,2-Dichloroethane-d4 | 10.0 | 100% | 75-125 | " | " | " |
| Surrogate: Toluene-d8 | 9.57 | 95.7% | 75-125 | " | " | " |
| Surrogate: 4-Bromofluorobenzene | 9.56 | 95.6% | 75-125 | " | " | " |

3301604 (1603050-04) Soil Sampled: Mar-30-16 14:30 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Vinyl chloride | U | | | 1.00 | ug/L | 1 | B16D026 | Apr-05-16 | Apr-13-16 |
| 1,1-Dichloroethene | U | | | 2.50 | " | " | " | " | " |
| 2-Butanone | 44.3 | | | 5.00 | " | " | " | " | " |
| Chloroform | U | | | 1.00 | " | " | " | " | " |
| Carbon tetrachloride | U | | | 2.50 | " | " | " | " | " |
| Benzene | 64.4 | | | 1.00 | " | " | " | " | " |



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Project Manager: Brian Kennedy

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May-13-16 13:18

Volatiles by GC/MS, EPA 8260C (modified)
US EPA Region 5 Chicago Regional Laboratory

3301604 (1603050-04) Soil Sampled: Mar-30-16 14:30 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|---------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| 1,2-Dichloroethane | 2.48 | | | 1.00 | ug/L | 1 | B16D026 | Apr-05-16 | Apr-13-16 |
| Trichloroethene | 10.4 | | | 1.00 | " | " | " | " | " |
| Tetrachloroethene | 13.3 | | | 2.50 | " | " | " | " | " |
| Chlorobenzene | U | | | 1.00 | " | " | " | " | " |
| 1,4-Dichlorobenzene | U | | | 2.50 | " | " | " | " | " |

| Surogate | Result | %REC | %REC Limits | Batch | Prepared | Analyzed |
|----------------------------------|--------|-------|----------------|-------|----------|----------|
| Surrogate: Dibromofluoromethane | 8.97 | 89.7% | 75-125 | " | " | " |
| Surrogate: 1,2-Dichloroethane-d4 | 10.2 | 102% | 75-125 | " | " | " |
| Surrogate: Toluene-d8 | 9.51 | 95.1% | 75-125 | " | " | " |
| Surrogate: 4-Bromofluorobenzene | 9.56 | 95.6% | 75-125 | " | " | " |

3301605 (1603050-05) Soil Sampled: Mar-30-16 14:40 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Vinyl chloride | U | | | 1.00 | ug/L | 1 | B16D026 | Apr-05-16 | Apr-13-16 |
| 1,1-Dichloroethene | U | | | 2.50 | " | " | " | " | " |
| 2-Butanone | 52.4 | | | 5.00 | " | " | " | " | " |
| Chloroform | U | | | 1.00 | " | " | " | " | " |
| Carbon tetrachloride | U | | | 2.50 | " | " | " | " | " |
| Benzene | 48.2 | | | 1.00 | " | " | " | " | " |
| 1,2-Dichloroethane | U | | | 1.00 | " | " | " | " | " |
| Trichloroethene | 14.8 | | | 1.00 | " | " | " | " | " |
| Tetrachloroethene | 19.6 | | | 2.50 | " | " | " | " | " |
| Chlorobenzene | U | | | 1.00 | " | " | " | " | " |
| 1,4-Dichlorobenzene | U | | | 2.50 | " | " | " | " | " |

| Surogate | Result | %REC | %REC Limits | Batch | Prepared | Analyzed |
|----------------------------------|--------|-------|----------------|-------|----------|----------|
| Surrogate: Dibromofluoromethane | 9.85 | 98.5% | 75-125 | " | " | " |
| Surrogate: 1,2-Dichloroethane-d4 | 10.4 | 104% | 75-125 | " | " | " |
| Surrogate: Toluene-d8 | 11.7 | 117% | 75-125 | " | " | " |
| Surrogate: 4-Bromofluorobenzene | 8.51 | 85.1% | 75-125 | " | " | " |



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Reported:
May-13-16 13:18

Volatiles by GC/MS, EPA 8260C (modified)
US EPA Region 5 Chicago Regional Laboratory

3301606 (1603050-06) Soil Sampled: Mar-30-16 15:21 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Vinyl chloride | U | | | 1.00 | ug/L | 1 | B16D026 | Apr-05-16 | Apr-13-16 |
| 1,1-Dichloroethene | U | | | 2.50 | " | " | " | " | " |
| 2-Butanone | U | | | 5.00 | " | " | " | " | " |
| Chloroform | U | | | 1.00 | " | " | " | " | " |
| Carbon tetrachloride | U | | | 2.50 | " | " | " | " | " |
| Benzene | 3.94 | | | 1.00 | " | " | " | " | " |
| 1,2-Dichloroethane | U | | | 1.00 | " | " | " | " | " |
| Trichloroethene | 5.69 | | | 1.00 | " | " | " | " | " |
| Tetrachloroethene | 21.0 | | | 2.50 | " | " | " | " | " |
| Chlorobenzene | U | | | 1.00 | " | " | " | " | " |
| 1,4-Dichlorobenzene | U | | | 2.50 | " | " | " | " | " |

| Surogate | Result | %REC | %REC Limits | Batch | Prepared | Analyzed |
|----------------------------------|--------|-------|----------------|-------|----------|----------|
| Surrogate: Dibromofluoromethane | 8.69 | 86.9% | 75-125 | " | " | " |
| Surrogate: 1,2-Dichloroethane-d4 | 9.88 | 98.8% | 75-125 | " | " | " |
| Surrogate: Toluene-d8 | 9.61 | 96.1% | 75-125 | " | " | " |
| Surrogate: 4-Bromofluorobenzene | 10.0 | 100% | 75-125 | " | " | " |

3301607 (1603050-07) Soil Sampled: Mar-30-16 15:36 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Vinyl chloride | U | | | 1.00 | ug/L | 1 | B16D026 | Apr-05-16 | Apr-13-16 |
| 1,1-Dichloroethene | U | | | 2.50 | " | " | " | " | " |
| 2-Butanone | U | | | 5.00 | " | " | " | " | " |
| Chloroform | U | | | 1.00 | " | " | " | " | " |
| Carbon tetrachloride | U | | | 2.50 | " | " | " | " | " |
| Benzene | U | | | 1.00 | " | " | " | " | " |
| 1,2-Dichloroethane | U | | | 1.00 | " | " | " | " | " |
| Trichloroethene | U | | | 1.00 | " | " | " | " | " |
| Tetrachloroethene | U | | | 2.50 | " | " | " | " | " |
| Chlorobenzene | U | | | 1.00 | " | " | " | " | " |
| 1,4-Dichlorobenzene | U | | | 2.50 | " | " | " | " | " |

| Surogate | Result | %REC | %REC Limits | Batch | Prepared | Analyzed |
|---------------------------------|--------|-------|----------------|-------|----------|----------|
| Surrogate: Dibromofluoromethane | 8.61 | 86.1% | 75-125 | " | " | " |



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Volatiles by GC/MS, EPA 8260C (modified)
US EPA Region 5 Chicago Regional Laboratory

3301607 (1603050-07) Soil Sampled: Mar-30-16 15:36 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------------------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Surrogate: 1,2-Dichloroethane-d4 | 10.2 | | | 102% | | 75-125 | B16D026 | Apr-05-16 | Apr-13-16 |
| Surrogate: Toluene-d8 | 9.27 | | | 92.7% | | 75-125 | " | " | " |
| Surrogate: 4-Bromofluorobenzene | 9.70 | | | 97.0% | | 75-125 | " | " | " |

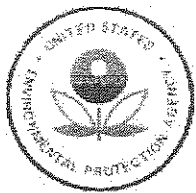
3301608 (1603050-08) Soil Sampled: Mar-30-16 15:47 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Vinyl chloride | U | | | 1.00 | ug/L | 1 | B16D026 | Apr-05-16 | Apr-13-16 |
| 1,1-Dichloroethene | U | | | 2.50 | " | " | " | " | " |
| 2-Butanone | U | | | 5.00 | " | " | " | " | " |
| Chloroform | U | | | 1.00 | " | " | " | " | " |
| Carbon tetrachloride | U | | | 2.50 | " | " | " | " | " |
| Benzene | 2.52 | | | 1.00 | " | " | " | " | " |
| 1,2-Dichloroethane | U | | | 1.00 | " | " | " | " | " |
| Trichloroethene | U | | | 1.00 | " | " | " | " | " |
| Tetrachloroethene | 3.60 | | | 2.50 | " | " | " | " | " |
| Chlorobenzene | U | | | 1.00 | " | " | " | " | " |
| 1,4-Dichlorobenzene | U | | | 2.50 | " | " | " | " | " |

| Surrogate | Result | %REC | %REC Limits | Batch | Prepared | Analyzed |
|----------------------------------|--------|-------|----------------|-------|----------|----------|
| Surrogate: Dibromofluoromethane | 8.61 | 86.1% | 75-125 | " | " | " |
| Surrogate: 1,2-Dichloroethane-d4 | 10.0 | 100% | 75-125 | " | " | " |
| Surrogate: Toluene-d8 | 9.69 | 96.9% | 75-125 | " | " | " |
| Surrogate: 4-Bromofluorobenzene | 9.41 | 94.1% | 75-125 | " | " | " |

3301609 (1603050-09) Soil Sampled: Mar-30-16 16:04 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Vinyl chloride | U | | | 1.00 | ug/L | 1 | B16D026 | Apr-07-16 | Apr-13-16 |
| 1,1-Dichloroethene | U | | | 2.50 | " | " | " | " | " |
| 2-Butanone | U | | | 5.00 | " | " | " | " | " |
| Chloroform | U | | | 1.00 | " | " | " | " | " |
| Carbon tetrachloride | U | | | 2.50 | " | " | " | " | " |
| Benzene | U | | | 1.00 | " | " | " | " | " |
| 1,2-Dichloroethane | U | | | 1.00 | " | " | " | " | " |



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Volatiles by GC/MS, EPA 8260C (modified)
US EPA Region 5 Chicago Regional Laboratory

3301609 (1603050-09) Soil Sampled: Mar-30-16 16:04 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|---------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Trichloroethene | 1.01 | | | 1.00 | ug/L | 1 | B16D026 | Apr-07-16 | Apr-13-16 |
| Tetrachloroethene | U | | | 2.50 | " | " | " | " | " |
| Chlorobenzene | U | | | 1.00 | " | " | " | " | " |
| 1,4-Dichlorobenzene | U | | | 2.50 | " | " | " | " | " |

| Surogate | Result | %REC | %REC Limits | Batch | Prepared | Analyzed |
|----------------------------------|--------|-------|----------------|-------|----------|----------|
| Surrogate: Dibromofluoromethane | 8.88 | 88.8% | 75-125 | " | " | " |
| Surrogate: 1,2-Dichloroethane-d4 | 10.4 | 104% | 75-125 | " | " | " |
| Surrogate: Toluene-d8 | 9.66 | 96.6% | 75-125 | " | " | " |
| Surrogate: 4-Bromofluorobenzene | 9.40 | 94.0% | 75-125 | " | " | " |

3301610 (1603050-10) Soil Sampled: Mar-30-16 16:14 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Vinyl chloride | U | | | 1.00 | ug/L | 1 | B16D026 | Apr-07-16 | Apr-13-16 |
| 1,1-Dichloroethene | U | | | 2.50 | " | " | " | " | " |
| 2-Butanone | U | | | 5.00 | " | " | " | " | " |
| Chloroform | U | | | 1.00 | " | " | " | " | " |
| Carbon tetrachloride | U | | | 2.50 | " | " | " | " | " |
| Benzene | U | | | 1.00 | " | " | " | " | " |
| 1,2-Dichloroethane | U | | | 1.00 | " | " | " | " | " |
| Trichloroethene | U | | | 1.00 | " | " | " | " | " |
| Tetrachloroethene | 13.5 | | | 2.50 | " | " | " | " | " |
| Chlorobenzene | U | | | 1.00 | " | " | " | " | " |
| 1,4-Dichlorobenzene | U | | | 2.50 | " | " | " | " | " |

| Surogate | Result | %REC | %REC Limits | Batch | Prepared | Analyzed |
|----------------------------------|--------|-------|----------------|-------|----------|----------|
| Surrogate: Dibromofluoromethane | 8.71 | 87.1% | 75-125 | " | " | " |
| Surrogate: 1,2-Dichloroethane-d4 | 10.4 | 104% | 75-125 | " | " | " |
| Surrogate: Toluene-d8 | 9.51 | 95.1% | 75-125 | " | " | " |
| Surrogate: 4-Bromofluorobenzene | 9.57 | 95.7% | 75-125 | " | " | " |



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May-13-16 13:18

Volatiles by GC/MS, EPA 8260C (modified)
US EPA Region 5 Chicago Regional Laboratory

3301610DUP (1603050-II) Soil Sampled: Mar-30-16 16:29 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Vinyl chloride | U | | | 1.00 | ug/L | 1 | B16D026 | Apr-07-16 | Apr-13-16 |
| 1,1-Dichloroethene | U | | | 2.50 | " | " | " | " | " |
| 2-Butanone | U | | | 5.00 | " | " | " | " | " |
| Chloroform | U | | | 1.00 | " | " | " | " | " |
| Carbon tetrachloride | U | | | 2.50 | " | " | " | " | " |
| Benzene | U | | | 1.00 | " | " | " | " | " |
| 1,2-Dichloroethane | U | | | 1.00 | " | " | " | " | " |
| Trichloroethene | U | | | 1.00 | " | " | " | " | " |
| Tetrachloroethene | 21.3 | | | 2.50 | " | " | " | " | " |
| Chlorobenzene | U | | | 1.00 | " | " | " | " | " |
| 1,4-Dichlorobenzene | U | | | 2.50 | " | " | " | " | " |

| Surogate | Result | %REC | %REC Limits | Batch | Prepared | Analyzed |
|----------------------------------|--------|-------|----------------|-------|----------|----------|
| Surrogate: Dibromofluoromethane | 8.59 | 85.9% | 75-125 | " | " | " |
| Surrogate: 1,2-Dichloroethane-d4 | 10.2 | 102% | 75-125 | " | " | " |
| Surrogate: Toluene-d8 | 9.44 | 94.4% | 75-125 | " | " | " |
| Surrogate: 4-Bromofluorobenzene | 9.49 | 94.9% | 75-125 | " | " | " |



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Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-13-16 13:18

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B16D026 - Volatiles

Blank (B16D026-BLK1)

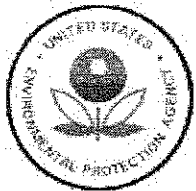
Prepared & Analyzed: Apr-13-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|----------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------------|-----|--------------|
| Vinyl chloride | U | | | 1.00 | ug/L | | | | | | |
| 1,1-Dichloroethene | U | | | 2.50 | " | | | | | | |
| 2-Butanone | U | | | 5.00 | " | | | | | | |
| Chloroform | U | | | 1.00 | " | | | | | | |
| Carbon tetrachloride | U | | | 2.50 | " | | | | | | |
| Benzene | U | | | 1.00 | " | | | | | | |
| 1,2-Dichloroethane | U | | | 1.00 | " | | | | | | |
| Trichloroethene | U | | | 1.00 | " | | | | | | |
| Tetrachloroethene | U | | | 2.50 | " | | | | | | |
| Chlorobenzene | U | | | 1.00 | " | | | | | | |
| 1,4-Dichlorobenzene | U | | | 2.50 | " | | | | | | |
| Surrogate: Dibromofluoromethane | 8.68 | | | | " | 10.00 | | 86.8% | 75-125 | | |
| Surrogate: 1,2-Dichloroethane-d4 | 9.76 | | | | " | 10.00 | | 97.6% | 75-125 | | |
| Surrogate: Toluene-d8 | 9.97 | | | | " | 10.00 | | 99.7% | 75-125 | | |
| Surrogate: 4-Bromofluorobenzene | 9.49 | | | | " | 10.00 | | 94.9% | 75-125 | | |

Blank (B16D026-BLK2)

Prepared: Apr-08-16 Analyzed: Apr-13-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|----------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------------|-----|--------------|
| Vinyl chloride | U | | | 1.00 | ug/L | | | | | | |
| 1,1-Dichloroethene | U | | | 2.50 | " | | | | | | |
| 2-Butanone | U | | | 5.00 | " | | | | | | |
| Chloroform | U | | | 1.00 | " | | | | | | |
| Carbon tetrachloride | U | | | 2.50 | " | | | | | | |
| Benzene | U | | | 1.00 | " | | | | | | |
| 1,2-Dichloroethane | U | | | 1.00 | " | | | | | | |
| Trichloroethene | U | | | 1.00 | " | | | | | | |
| Tetrachloroethene | U | | | 2.50 | " | | | | | | |
| Chlorobenzene | U | | | 1.00 | " | | | | | | |
| 1,4-Dichlorobenzene | U | | | 2.50 | " | | | | | | |
| Surrogate: Dibromofluoromethane | 9.03 | | | | " | 10.00 | | 90.3% | 75-125 | | |
| Surrogate: 1,2-Dichloroethane-d4 | 10.2 | | | | " | 10.00 | | 102% | 75-125 | | |



Environmental Protection Agency Region 5
Chicago Regional Laboratory

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Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-13-16 13:18

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B16D026 - Volatiles

Blank (B16D026-BLK2)

Prepared: Apr-08-16 Analyzed: Apr-13-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|---------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------------|-----|--------------|
| Surrogate: Toluene-d8 | 9.67 | | | | ug/L | 10.00 | | 96.7% | 75-125 | | |
| Surrogate: 4-Bromofluorobenzene | 9.38 | | | | " | 10.00 | | 93.8% | 75-125 | | |

Blank (B16D026-BLK3)

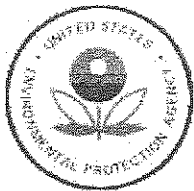
Prepared: Apr-06-16 Analyzed: Apr-13-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|----------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------------|-----|--------------|
| Vinyl chloride | U | | | 1.00 | ug/L | | | | | | |
| 1,1-Dichloroethene | U | | | 2.50 | " | | | | | | |
| 2-Butanone | U | | | 5.00 | " | | | | | | |
| Chloroform | U | | | 1.00 | " | | | | | | |
| Carbon tetrachloride | U | | | 2.50 | " | | | | | | |
| Benzene | U | | | 1.00 | " | | | | | | |
| 1,2-Dichloroethane | U | | | 1.00 | " | | | | | | |
| Trichloroethene | U | | | 1.00 | " | | | | | | |
| Tetrachloroethene | U | | | 2.50 | " | | | | | | |
| Chlorobenzene | U | | | 1.00 | " | | | | | | |
| 1,4-Dichlorobenzene | U | | | 2.50 | " | | | | | | |
| Surrogate: Dibromofluoromethane | 9.10 | | | | " | 10.00 | | 91.0% | 75-125 | | |
| Surrogate: 1,2-Dichloroethane-d4 | 9.71 | | | | " | 10.00 | | 97.1% | 75-125 | | |
| Surrogate: Toluene-d8 | 9.52 | | | | " | 10.00 | | 95.2% | 75-125 | | |
| Surrogate: 4-Bromofluorobenzene | 9.82 | | | | " | 10.00 | | 98.2% | 75-125 | | |

Blank (B16D026-BLK4)

Prepared: Apr-08-16 Analyzed: Apr-13-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|----------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|
| Vinyl chloride | U | | | 1.00 | ug/L | | | | | | |
| 1,1-Dichloroethene | U | | | 2.50 | " | | | | | | |
| 2-Butanone | U | | | 5.00 | " | | | | | | |
| Chloroform | U | | | 1.00 | " | | | | | | |
| Carbon tetrachloride | U | | | 2.50 | " | | | | | | |
| Benzene | U | | | 1.00 | " | | | | | | |
| 1,2-Dichloroethane | U | | | 1.00 | " | | | | | | |
| Trichloroethene | U | | | 1.00 | " | | | | | | |



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Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-13-16 13:18

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B16D026 - Volatiles

Blank (B16D026-BLK4)

Prepared: Apr-08-16 Analyzed: Apr-13-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|----------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------------|-----|--------------|
| Tetrachloroethene | U | | | 2.50 | ug/L | | | | | | |
| Chlorobenzene | U | | | 1.00 | " | | | | | | |
| 1,4-Dichlorobenzene | U | | | 2.50 | " | | | | | | |
| Surrogate: Dibromofluoromethane | 9.13 | | | | " | 10.00 | | 91.3% | 75-125 | | |
| Surrogate: 1,2-Dichloroethane-d4 | 10.1 | | | | " | 10.00 | | 101% | 75-125 | | |
| Surrogate: Toluene-d8 | 9.39 | | | | " | 10.00 | | 93.9% | 75-125 | | |
| Surrogate: 4-Bromofluorobenzene | 9.31 | | | | " | 10.00 | | 93.1% | 75-125 | | |

LCS (B16D026-BS1)

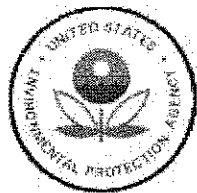
Prepared & Analyzed: Apr-13-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|----------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------------|-----|--------------|
| Vinyl chloride | 19.4 | | | 1.00 | ug/L | 25.00 | | 77.7% | 75-125 | | |
| 1,1-Dichloroethene | 19.7 | | | 2.50 | " | 25.00 | | 78.6% | 75-125 | | |
| 2-Butanone | 148 | | | 5.00 | " | 125.0 | | 119% | 75-125 | | |
| Chloroform | 22.6 | | | 1.00 | " | 25.00 | | 90.4% | 75-125 | | |
| Carbon tetrachloride | 21.6 | | | 2.50 | " | 25.00 | | 86.6% | 75-125 | | |
| Benzene | 22.3 | | | 1.00 | " | 25.00 | | 89.3% | 75-125 | | |
| 1,2-Dichloroethane | 24.0 | | | 1.00 | " | 25.00 | | 95.8% | 75-125 | | |
| Trichloroethene | 21.8 | | | 1.00 | " | 25.00 | | 87.4% | 75-125 | | |
| Tetrachloroethene | 23.2 | | | 2.50 | " | 25.00 | | 93.0% | 75-125 | | |
| Chlorobenzene | 24.5 | | | 1.00 | " | 25.00 | | 97.9% | 75-125 | | |
| 1,4-Dichlorobenzene | 24.2 | | | 2.50 | " | 25.00 | | 96.7% | 75-125 | | |
| Surrogate: Dibromofluoromethane | 9.06 | | | | " | 10.00 | | 90.6% | 75-125 | | |
| Surrogate: 1,2-Dichloroethane-d4 | 10.1 | | | | " | 10.00 | | 101% | 75-125 | | |
| Surrogate: Toluene-d8 | 9.61 | | | | " | 10.00 | | 96.1% | 75-125 | | |
| Surrogate: 4-Bromofluorobenzene | 10.0 | | | | " | 10.00 | | 100% | 75-125 | | |

LCS Dup (B16D026-BSD1)

Prepared & Analyzed: Apr-13-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|--------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------------|------|--------------|
| Vinyl chloride | 23.0 | | | 1.00 | ug/L | 25.00 | | 92.0% | 75-125 | 17.0 | 30 |
| 1,1-Dichloroethene | 20.1 | | | 2.50 | " | 25.00 | | 80.5% | 75-125 | 2.34 | 30 |
| 2-Butanone | 99.2 | | | 5.00 | " | 125.0 | | 79.4% | 75-125 | 39.6 | 30 |



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Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-13-16 13:18

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B16D026 - Volatiles

LCS Dup (B16D026-BSD1)

Prepared & Analyzed: Apr-13-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|----------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------------|------|--------------|
| Chloroform | 22.2 | | | 1.00 | ug/L | 25.00 | | 88.6% | 75-125 | 1.93 | 30 |
| Carbon tetrachloride | 20.5 | | | 2.50 | " | 25.00 | | 82.0% | 75-125 | 5.44 | 30 |
| Benzene | 21.8 | | | 1.00 | " | 25.00 | | 87.1% | 75-125 | 2.48 | 30 |
| 1,2-Dichloroethane | 23.6 | | | 1.00 | " | 25.00 | | 94.3% | 75-125 | 1.62 | 30 |
| Trichloroethene | 20.2 | | | 1.00 | " | 25.00 | | 80.8% | 75-125 | 7.79 | 30 |
| Tetrachloroethene | 22.7 | | | 2.50 | " | 25.00 | | 90.9% | 75-125 | 2.24 | 30 |
| Chlorobenzene | 24.2 | | | 1.00 | " | 25.00 | | 96.7% | 75-125 | 1.24 | 30 |
| 1,4-Dichlorobenzene | 25.1 | | | 2.50 | " | 25.00 | | 101% | 75-125 | 3.83 | 30 |
| Surrogate: Dibromofluoromethane | 8.14 | | | | " | 10.00 | | 81.4% | 75-125 | | |
| Surrogate: 1,2-Dichloroethane-d4 | 10.4 | | | | " | 10.00 | | 104% | 75-125 | | |
| Surrogate: Toluene-d8 | 9.60 | | | | " | 10.00 | | 96.0% | 75-125 | | |
| Surrogate: 4-Bromofluorobenzene | 9.46 | | | | " | 10.00 | | 94.6% | 75-125 | | |

Duplicate (B16D026-DUP1)

Source: 1603050-09

Prepared & Analyzed: Apr-13-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|----------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------------|------|--------------|
| Vinyl chloride | U | | | 1.00 | ug/L | | U | | | | 200 |
| 1,1-Dichloroethene | U | | | 2.50 | " | | U | | | | 200 |
| 2-Butanone | U | | | 5.00 | " | | U | | | | 200 |
| Chloroform | U | | | 1.00 | " | | U | | | | 200 |
| Carbon tetrachloride | U | | | 2.50 | " | | U | | | | 200 |
| Benzene | U | | | 1.00 | " | | U | | | | 200 |
| 1,2-Dichloroethane | U | | | 1.00 | " | | U | | | | 200 |
| Trichloroethene | 0.862 | | | 1.00 | " | | 1.01 | | | 15.8 | 200 |
| Tetrachloroethene | 2.05 | | | 2.50 | " | | 2.26 | | | 9.65 | 200 |
| Chlorobenzene | U | | | 1.00 | " | | U | | | | 200 |
| 1,4-Dichlorobenzene | U | | | 2.50 | " | | U | | | | 200 |
| Surrogate: Dibromofluoromethane | 8.49 | | | | " | 10.00 | | 84.9% | 75-125 | | |
| Surrogate: 1,2-Dichloroethane-d4 | 10.1 | | | | " | 10.00 | | 101% | 75-125 | | |
| Surrogate: Toluene-d8 | 9.57 | | | | " | 10.00 | | 95.7% | 75-125 | | |
| Surrogate: 4-Bromofluorobenzene | 9.43 | | | | " | 10.00 | | 94.3% | 75-125 | | |



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Project: Ortek
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Project Manager: Brian Kennedy

Reported:
May-13-16 13:18

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B16D026 - Volatiles

MRL Check (B16D026-MRL1)

Prepared: Apr-13-16 Analyzed: Apr-11-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|----------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------------|-----|--------------|
| Vinyl chloride | 0.978 | | | 1.00 | ug/L | 1.000 | | 97.8% | 70-130 | | |
| 2-Butanone | 4.58 | | | 5.00 | " | 5.000 | | 91.6% | 70-130 | | |
| Chloroform | 0.962 | | | 1.00 | " | 1.000 | | 96.2% | 70-130 | | |
| Benzene | 0.966 | | | 1.00 | " | 1.000 | | 96.6% | 70-130 | | |
| 1,2-Dichloroethane | 0.956 | | | 1.00 | " | 1.000 | | 95.6% | 70-130 | | |
| Trichloroethene | 1.02 | | | 1.00 | " | 1.000 | | 102% | 70-130 | | |
| Chlorobenzene | 0.928 | | | 1.00 | " | 1.000 | | 92.8% | 70-130 | | |
| Surrogate: Dibromofluoromethane | 9.76 | | | | " | 10.00 | | 97.6% | 75-125 | | |
| Surrogate: 1,2-Dichloroethane-d4 | 10.2 | | | | " | 10.00 | | 102% | 75-125 | | |
| Surrogate: Toluene-d8 | 9.86 | | | | " | 10.00 | | 98.6% | 75-125 | | |
| Surrogate: 4-Bromofluorobenzene | 10.0 | | | | " | 10.00 | | 100% | 75-125 | | |

MRL Check (B16D026-MRL2)

Prepared: Apr-13-16 Analyzed: Apr-11-16

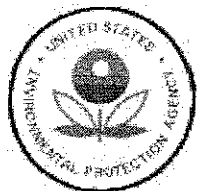
| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|----------------------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------------|-----|--------------|
| 1,1-Dichloroethene | 2.36 | | | 2.50 | ug/L | 2.500 | | 94.5% | 70-130 | | |
| Carbon tetrachloride | 2.24 | | | 2.50 | " | 2.500 | | 89.4% | 70-130 | | |
| Tetrachloroethene | 2.39 | | | 2.50 | " | 2.500 | | 95.5% | 70-130 | | |
| 1,4-Dichlorobenzene | 2.42 | | | 2.50 | " | 2.500 | | 96.9% | 70-130 | | |
| Surrogate: Dibromofluoromethane | 9.80 | | | | " | 10.00 | | 98.0% | 75-125 | | |
| Surrogate: 1,2-Dichloroethane-d4 | 10.1 | | | | " | 10.00 | | 101% | 75-125 | | |
| Surrogate: Toluene-d8 | 9.74 | | | | " | 10.00 | | 97.4% | 75-125 | | |
| Surrogate: 4-Bromofluorobenzene | 9.94 | | | | " | 10.00 | | 99.4% | 75-125 | | |

Matrix Spike (B16D026-MS1)

Source: 1603050-01

Prepared & Analyzed: Apr-13-16

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
|----------------------|--------|-----------------------|-----|--------------------|-------|----------------|------------------|-------|----------------|-----|--------------|
| Vinyl chloride | 6.96 | | | 1.00 | ug/L | 25.00 | U | 27.8% | 75-125 | | |
| 1,1-Dichloroethene | 5.61 | | | 2.50 | " | 25.00 | U | 22.4% | 75-125 | | |
| 2-Butanone | 27.7 | | | 5.00 | " | 125.0 | U | 22.2% | 75-125 | | |
| Chloroform | 6.02 | | | 1.00 | " | 25.00 | U | 24.1% | 75-125 | | |
| Carbon tetrachloride | 5.83 | | | 2.50 | " | 25.00 | U | 23.3% | 75-125 | | |
| Benzene | 6.16 | | | 1.00 | " | 25.00 | U | 24.7% | 75-125 | | |



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Project: Ortek
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Project Manager: Brian Kennedy

Reported:
May-13-16 13:18

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B16D026 - Volatiles

| Matrix Spike (B16D026-MS1) | | | Source: 1603050-01 | | | Prepared & Analyzed: Apr-13-16 | | | | | |
|----------------------------------|--------|-----------------------|--------------------|--------------------|-------|--------------------------------|------------------|-------|----------------|-----|--------------|
| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
| 1,2-Dichloroethane | 6.11 | | | 1.00 | ug/L | 25.00 | U | 24.4% | 75-125 | | |
| Trichloroethene | 5.43 | | | 1.00 | " | 25.00 | U | 21.7% | 75-125 | | |
| Tetrachloroethene | 5.97 | | | 2.50 | " | 25.00 | U | 23.9% | 75-125 | | |
| Chlorobenzene | 6.19 | | | 1.00 | " | 25.00 | U | 24.8% | 75-125 | | |
| 1,4-Dichlorobenzene | 6.31 | | | 2.50 | " | 25.00 | U | 25.2% | 75-125 | | |
| Surrogate: Dibromofluoromethane | 9.09 | | | | " | 10.00 | | 90.9% | 75-125 | | |
| Surrogate: 1,2-Dichloroethane-d4 | 9.93 | | | | " | 10.00 | | 99.3% | 75-125 | | |
| Surrogate: Toluene-d8 | 9.34 | | | | " | 10.00 | | 93.4% | 75-125 | | |
| Surrogate: 4-Bromofluorobenzene | 9.78 | | | | " | 10.00 | | 97.8% | 75-125 | | |

| Matrix Spike Dup (B16D026-MSD1) | | | Source: 1603050-01 | | | Prepared & Analyzed: Apr-13-16 | | | | | |
|----------------------------------|--------|-----------------------|--------------------|--------------------|-------|--------------------------------|------------------|-------|----------------|------|--------------|
| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
| Vinyl chloride | 2.52 | | | 1.00 | ug/L | 25.00 | U | 10.1% | 75-125 | 93.6 | 30 |
| 1,1-Dichloroethene | 2.95 | | | 2.50 | " | 25.00 | U | 11.8% | 75-125 | 62.1 | 30 |
| 2-Butanone | 14.5 | | | 5.00 | " | 125.0 | U | 11.6% | 75-125 | 62.5 | 30 |
| Chloroform | 2.77 | | | 1.00 | " | 25.00 | U | 11.1% | 75-125 | 74.0 | 30 |
| Carbon tetrachloride | 2.81 | | | 2.50 | " | 25.00 | U | 11.2% | 75-125 | 70.0 | 30 |
| Benzene | 3.08 | | | 1.00 | " | 25.00 | U | 12.3% | 75-125 | 66.7 | 30 |
| 1,2-Dichloroethane | 3.04 | | | 1.00 | " | 25.00 | U | 12.2% | 75-125 | 67.1 | 30 |
| Trichloroethene | 2.80 | | | 1.00 | " | 25.00 | U | 11.2% | 75-125 | 63.8 | 30 |
| Tetrachloroethene | 2.94 | | | 2.50 | " | 25.00 | U | 11.8% | 75-125 | 67.9 | 30 |
| Chlorobenzene | 2.89 | | | 1.00 | " | 25.00 | U | 11.6% | 75-125 | 72.7 | 30 |
| 1,4-Dichlorobenzene | 2.96 | | | 2.50 | " | 25.00 | U | 11.8% | 75-125 | 72.3 | 30 |
| Surrogate: Dibromofluoromethane | 8.97 | | | | " | 10.00 | | 89.7% | 75-125 | | |
| Surrogate: 1,2-Dichloroethane-d4 | 9.94 | | | | " | 10.00 | | 99.4% | 75-125 | | |
| Surrogate: Toluene-d8 | 9.53 | | | | " | 10.00 | | 95.3% | 75-125 | | |
| Surrogate: 4-Bromofluorobenzene | 9.79 | | | | " | 10.00 | | 97.9% | 75-125 | | |



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Phone: (312) 353-8370 Fax: (312) 886-2591

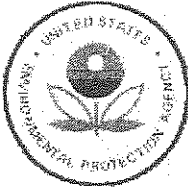
RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-13-16 13:18

Notes and Definitions

J The identification of the analyte is acceptable; the reported value is an estimate.
U Not Detected
NR Not Reported



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CHICAGO REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605

Date: 5/16/2016

Subject: Review of Region 5 Data for Ortek

To: RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604

From: Danita Larry, Analyst
US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with EPA's *Guidance on Environmental Data Verification and Data Validation* (Document EPA QA/G-8), CRL verified and validated the data but does not perform data quality assessment based on project plans.

This report was reviewed and the information provided herein accurately represents the analysis performed.

X

Danita Larry

Please contact the analyst with any technical report issues, Robert Thompson at (312)-353-9078 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.

Attached are Results for: Ortek

Data Management Coordinator and Date Transmitted

Analyses included in this report:

TPH



Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-16-16 11:18

ANALYSIS CASE NARRATIVE

Analyst Phone Number: 312-353-1161

GENERAL INFORMATION:

Eleven (11) soil samples collected for TPH of DRO/ORO analyses were received at the Chicago Regional Laboratory (CRL) on 03/31/2016. The samples were checked out from the CRL sample custodian and extracted on 04/13/2016. Analyses holding times were met. Other pertinent information is provided in the final report.

SAMPLE ANALYSIS:

Soil samples, and associated QC samples, were extracted by CRL Standard Operating Procedure (CRL.SOP) GC034 Rev. 1 SW-846 EPA Method 8015C (TPH of DRO/ORO by ASE)

The samples were analyzed for TPH by GC-FID on GC #8 using CRL SOP GC034 Rev. 1 (SW-846 EPA METHOD 8015C).

The data reported herein meet the Data Quality Objectives referenced in the Ortek, Inc. Project Sampling Plan, February 2016.

Please see LIMS report for complete results.

QUALITY CONTROL (QC):

All required quality control criteria for the laboratory, method, and system performance audits were evaluated and determined to be within CRL's QC limits with the following exceptions:

Surrogate recovery for the samples did not meet CRL QC limits of 50-150 %; qualitative identification of the surrogate in these samples were complicated by the presence of multiple peaks in the same retention time window and at similar abundance as the surrogate. Since the flame ionization detector used for this analysis is non-specific, the surrogate could not be distinguished from other hydrocarbons present in these samples due to matrix interferences.

Matrix spike recovery for B16D024-MS1/MSD1 recovery of TPH for DRO/ORO were above CRL QC limits of 50-150% source sample 1603050-01 will be flagged K bias high due to matrix interferences.

Continuing verification standard (CVS) for TPH for ORO did not meet the CRL QC limits (Conc. %D > 25%); those compounds effected with detects will be qualified (J) as estimated.



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Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-16-16 11:18



Environmental Protection Agency Region 5
Chicago Regional Laboratory

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77 West Jackson Boulevard
Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-16-16 11:18

ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|------------|---------------|--------|-----------------|-----------------|
| 3301601 | 1603050-01 | Soil | Mar-30-16 13:40 | Mar-31-16 10:15 |
| 3301602 | 1603050-02 | Soil | Mar-30-16 14:02 | Mar-31-16 10:15 |
| 3301603 | 1603050-03 | Soil | Mar-30-16 14:20 | Mar-31-16 10:15 |
| 3301604 | 1603050-04 | Soil | Mar-30-16 14:30 | Mar-31-16 10:15 |
| 3301605 | 1603050-05 | Soil | Mar-30-16 14:40 | Mar-31-16 10:15 |
| 3301606 | 1603050-06 | Soil | Mar-30-16 15:21 | Mar-31-16 10:15 |
| 3301607 | 1603050-07 | Soil | Mar-30-16 15:36 | Mar-31-16 10:15 |
| 3301608 | 1603050-08 | Soil | Mar-30-16 15:47 | Mar-31-16 10:15 |
| 3301609 | 1603050-09 | Soil | Mar-30-16 16:04 | Mar-31-16 10:15 |
| 3301610 | 1603050-10 | Soil | Mar-30-16 16:14 | Mar-31-16 10:15 |
| 3301610DUP | 1603050-11 | Soil | Mar-30-16 16:29 | Mar-31-16 10:15 |



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Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-16-16 11:18

Volatiles by GC-FID, EPA method 8015 (modified)
US EPA Region 5 Chicago Regional Laboratory

3301601 (1603050-01) Soil Sampled: Mar-30-16 13:40 Received: Mar-31-16 10:15

Qualifiers: K

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|--|--------|-----------------------|------|--------------------|----------------------|----------------|---------|-----------|-----------|
| Diesel Range Hydrocarbons (C10-C21) | 2130 | | 260 | 961 | mg/kg dry wt. dry | 100 | B16D024 | Apr-12-16 | May-06-16 |
| Oil range hydrocabons (C21-C34) | 13400 | J | 4500 | 9610 | " | 1000 | " | " | May-09-16 |
| Surogate | Result | | | %REC | | %REC Limits | Batch | Prepared | Analyzed |
| Surrogate: 1-Chlorooctadecane | 0.00 | MI, U | | % | | 50-150 | " | " | " |

3301602 (1603050-02) Soil Sampled: Mar-30-16 14:02 Received: Mar-31-16 10:15

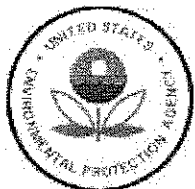
| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|--|--------|-----------------------|------|--------------------|----------------------|----------------|---------|-----------|-----------|
| Diesel Range Hydrocarbons (C10-C21) | 8210 | | 779 | 2870 | mg/kg dry wt. dry | 300 | B16D024 | Apr-12-16 | May-09-16 |
| Oil range hydrocabons (C21-C34) | 24700 | J | 4490 | 9570 | " | 1000 | " | " | May-09-16 |
| Surogate | Result | | | %REC | | %REC Limits | Batch | Prepared | Analyzed |
| Surrogate: 1-Chlorooctadecane | 0.00 | MI, U | | % | | 50-150 | " | " | May-09-16 |

3301603 (1603050-03) Soil Sampled: Mar-30-16 14:20 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|--|--------|-----------------------|-------|--------------------|----------------------|----------------|---------|-----------|-----------|
| Diesel Range Hydrocarbons (C10-C21) | 9690 | | 1160 | 4280 | mg/kg dry wt. dry | 400 | B16D024 | Apr-12-16 | May-09-16 |
| Oil range hydrocabons (C21-C34) | 1.30E5 | J | 12500 | 26700 | " | 2500 | " | " | May-09-16 |
| Surogate | Result | | | %REC | | %REC Limits | Batch | Prepared | Analyzed |
| Surrogate: 1-Chlorooctadecane | 0.00 | MI, U | | % | | 50-150 | " | " | May-09-16 |

3301604 (1603050-04) Soil Sampled: Mar-30-16 14:30 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|--|--------|-----------------------|------|--------------------|----------------------|----------|---------|-----------|-----------|
| Diesel Range Hydrocarbons (C10-C21) | 27900 | | 2740 | 10100 | mg/kg dry wt. dry | 1000 | B16D024 | Apr-12-16 | May-09-16 |



Environmental Protection Agency Region 5
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Phone:(312)353-8370 Fax:(312)886-2591

RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-16-16 11:18

Volatiles by GC-FID, EPA method 8015 (modified)
US EPA Region 5 Chicago Regional Laboratory

3301604 (1603050-04) Soil Sampled: Mar-30-16 14:30 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|---------------------------------|--------|-----------------------|-------|--------------------|----------------------|----------------|---------|-----------|-----------|
| Oil range hydrocabons (C21-C34) | 1.15E5 | J | 16600 | 35400 | mg/kg dry wt. dry | 3500 | B16D024 | Apr-12-16 | May-09-16 |
| Surogate | Result | | | %REC | | %REC Limits | Batch | Prepared | Analyzed |
| Surrogate: 1-Chlorooctadecane | 146 | MI | | 3600% | | 50-150 | " | " | May-09-16 |

3301605 (1603050-05) Soil Sampled: Mar-30-16 14:40 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|--|--------|-----------------------|------|--------------------|----------------------|----------------|---------|-----------|-----------|
| Diesel Range Hydrocarbons (C10-C21) | 19800 | | 1860 | 6870 | mg/kg dry wt. dry | 700 | B16D024 | Apr-12-16 | May-10-16 |
| Oil range hydrocabons (C21-C34) | 68700 | J | 9200 | 19600 | " | 2000 | " | " | May-10-16 |
| Surogate | Result | | | %REC | | %REC Limits | Batch | Prepared | Analyzed |
| Surrogate: 1-Chlorooctadecane | 39.4 | MI | | 999% | | 50-150 | " | " | May-10-16 |

3301606 (1603050-06) Soil Sampled: Mar-30-16 15:21 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|--|--------|-----------------------|------|--------------------|----------------------|----------------|---------|-----------|-----------|
| Diesel Range Hydrocarbons (C10-C21) | 8520 | | 747 | 2750 | mg/kg dry wt. dry | 300 | B16D024 | Apr-12-16 | May-10-16 |
| Oil range hydrocabons (C21-C34) | 35300 | J | 6460 | 13800 | " | 1500 | " | " | May-10-16 |
| Surogate | Result | | | %REC | | %REC Limits | Batch | Prepared | Analyzed |
| Surrogate: 1-Chlorooctadecane | 0.00 | MI, U | | % | | 50-150 | " | " | May-10-16 |

3301607 (1603050-07) Soil Sampled: Mar-30-16 15:36 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|--|--------|-----------------------|------|--------------------|----------------------|----------------|---------|-----------|-----------|
| Diesel Range Hydrocarbons (C10-C21) | 8170 | | 804 | 2970 | mg/kg dry wt. dry | 300 | B16D024 | Apr-12-16 | May-10-16 |
| Oil range hydrocabons (C21-C34) | 42900 | J | 6950 | 14800 | " | 1500 | " | " | " |
| Surogate | Result | | | %REC | | %REC Limits | Batch | Prepared | Analyzed |
| Surrogate: 1-Chlorooctadecane | 0.00 | MI, U | | % | | 50-150 | " | " | " |



Environmental Protection Agency Region 5
Chicago Regional Laboratory

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RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-16-16 11:18

Volatiles by GC-FID, EPA method 8015 (modified)
US EPA Region 5 Chicago Regional Laboratory

3301608 (1603050-08) Soil Sampled: Mar-30-16 15:47 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|--|--------|-----------------------|-------|--------------------|----------------------|----------------|---------|-----------|-----------|
| Diesel Range Hydrocarbons (C10-C21) | 19800 | | 1810 | 6660 | mg/kg dry wt. dry | 700 | B16D024 | Apr-12-16 | May-10-16 |
| Oil range hydrocabons (C21-C34) | 64700 | J | 13400 | 28500 | " | 3000 | " | " | May-10-16 |
| Surogate | Result | | | %REC | | %REC Limits | Batch | Prepared | Analyzed |
| Surrogate: 1-Chlorooctadecane | 0.00 | MI, U | | % | | 50-150 | " | " | May-10-16 |

3301609 (1603050-09) Soil Sampled: Mar-30-16 16:04 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|--|--------|-----------------------|------|--------------------|----------------------|----------------|---------|-----------|-----------|
| Diesel Range Hydrocarbons (C10-C21) | 10900 | | 783 | 2890 | mg/kg dry wt. dry | 300 | B16D024 | Apr-12-16 | May-10-16 |
| Oil range hydrocabons (C21-C34) | 40900 | J | 6770 | 14400 | " | 1500 | " | " | May-10-16 |
| Surogate | Result | | | %REC | | %REC Limits | Batch | Prepared | Analyzed |
| Surrogate: 1-Chlorooctadecane | 0.00 | MI, U | | % | | 50-150 | " | " | May-10-16 |

3301610 (1603050-10) Soil Sampled: Mar-30-16 16:14 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|--|--------|-----------------------|------|--------------------|----------------------|----------------|---------|-----------|-----------|
| Diesel Range Hydrocarbons (C10-C21) | 4890 | | 252 | 931 | mg/kg dry wt. dry | 100 | B16D024 | Apr-12-16 | May-06-16 |
| Oil range hydrocabons (C21-C34) | 25600 | J | 4360 | 9310 | " | 1000 | " | " | May-10-16 |
| Surogate | Result | | | %REC | | %REC Limits | Batch | Prepared | Analyzed |
| Surrogate: 1-Chlorooctadecane | 0.00 | MI, U | | % | | 50-150 | " | " | " |

3301610DUP (1603050-11) Soil Sampled: Mar-30-16 16:29 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|--|--------|-----------------------|------|--------------------|----------------------|----------------|---------|-----------|-----------|
| Diesel Range Hydrocarbons (C10-C21) | 9430 | | 768 | 2830 | mg/kg dry wt. dry | 300 | B16D024 | Apr-12-16 | May-10-16 |
| Oil range hydrocabons (C21-C34) | 48900 | J | 8850 | 18900 | " | 2000 | " | " | May-10-16 |
| Surogate | Result | | | %REC | | %REC Limits | Batch | Prepared | Analyzed |



Environmental Protection Agency Region 5
Chicago Regional Laboratory

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Phone:(312)353-8370 Fax:(312)886-2591

RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-16-16 11:18

Volatiles by GC-FID, EPA method 8015 (modified)
US EPA Region 5 Chicago Regional Laboratory

3301610DUP (1603050-11) Soil Sampled: Mar-30-16 16:29 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|-------------------------------|--------|-----------------------|-----|--------------------|-------|----------|---------|-----------|-----------|
| Surrogate: 1-Chlorooctadecane | 0.00 | MI, U | | % | | 50-150 | B16D024 | Apr-12-16 | May-10-16 |



Environmental Protection Agency Region 5
Chicago Regional Laboratory

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77 West Jackson Boulevard
Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-16-16 11:18

Volatiles by GC-FID, EPA method 8015 (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B16D024 - EPA 3545

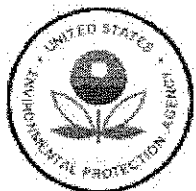
| Blank (B16D024-BLK1) | | | | | | | | | | | |
|---|--------|-----------------------|------|--------------------|------------------|----------------|------------------|-------|--------|-----|--------------|
| Prepared: Apr-12-16 Analyzed: May-05-16 | | | | | | | | | | | |
| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | Limits | RPD | RPD Limit |
| Diesel Range Hydrocarbons (C10-C21) | U | U | 2.25 | 8.30 | mg/kg dry wt. | | | | | | |
| Oil range hydrocabons (C21-C34) | U | U | 3.89 | 8.30 | " | | | | | | |
| Surrogate: 1-Chlorooctadecane | 3.15 | | | | " | 3.333 | | 94.6% | 50-150 | | |

| LCS (B16D024-BS1) | | | | | | | | | | | |
|---|--------|-----------------------|------|--------------------|------------------|----------------|------------------|-------|--------|-----|--------------|
| Prepared: Apr-12-16 Analyzed: May-05-16 | | | | | | | | | | | |
| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | Limits | RPD | RPD Limit |
| Diesel Range Hydrocarbons (C10-C21) | 19.2 | | 2.25 | 8.30 | mg/kg dry wt. | 16.67 | | 115% | 50-150 | | |
| Oil range hydrocabons (C21-C34) | 13.5 | | 3.89 | 8.30 | " | 16.67 | | 81.2% | 50-150 | | |
| Surrogate: 1-Chlorooctadecane | 3.32 | | | | " | 3.333 | | 99.5% | 50-150 | | |

| LCS Dup (B16D024-BSD1) | | | | | | | | | | | |
|---|--------|-----------------------|------|--------------------|------------------|----------------|------------------|-------|--------|------|--------------|
| Prepared: Apr-12-16 Analyzed: May-05-16 | | | | | | | | | | | |
| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | Limits | RPD | RPD Limit |
| Diesel Range Hydrocarbons (C10-C21) | 19.5 | | 2.25 | 8.30 | mg/kg dry wt. | 16.67 | | 117% | 50-150 | 1.55 | 30 |
| Oil range hydrocabons (C21-C34) | 12.7 | | 3.89 | 8.30 | " | 16.67 | | 76.4% | 50-150 | 6.08 | 30 |
| Surrogate: 1-Chlorooctadecane | 3.29 | | | | " | 3.333 | | 98.7% | 50-150 | | |

| Matrix Spike (B16D024-MS1) | | | | | | | | | | | |
|--|--------|-----------------------|------|--------------------|----------------------|----------------|------------------|------|--------|-----|--------------|
| Source: 1603050-01 Prepared: Apr-12-16 Analyzed: May-06-16 | | | | | | | | | | | |
| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | Limits | RPD | RPD Limit |
| Diesel Range Hydrocarbons (C10-C21) | 3750 | | 260 | 958 | mg/kg dry wt. dry | 19.24 | 2130 | NR | 50-150 | | |
| Oil range hydrocabons (C21-C34) | 32300 | | 4490 | 9580 | " | 19.24 | 13400 | NR | 50-150 | | |
| Surrogate: 1-Chlorooctadecane | 0.00 | MI, U | | | " | 3.848 | | % | 50-150 | | |

| Matrix Spike Dup (B16D024-MSD1) | | | | | | | | | | | |
|--|--------|-----------------------|-----|--------------------|-------|----------------|------------------|------|--------|-----|--------------|
| Source: 1603050-01 Prepared: Apr-12-16 Analyzed: May-06-16 | | | | | | | | | | | |
| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | Limits | RPD | RPD Limit |



Environmental Protection Agency Region 5
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Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-16-16 11:18

Volatiles by GC-FID, EPA method 8015 (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B16D024 - EPA 3545

| Matrix Spike Dup (B16D024-MSD1) | | Source: 1603050-01 | | Prepared: Apr-12-16 Analyzed: May-06-16 | | | | | | | |
|--|--------|-----------------------|------|---|----------------------|----------------|------------------|------|----------------|------|--------------|
| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit |
| Diesel Range Hydrocarbons (C10-C21) | 1840 | | 259 | 957 | mg/kg dry wt. dry | 19.21 | 2130 | NR | 50-150 | 68.5 | 30 |
| Oil range hydrocarbons (C21-C34) | 17300 | | 2240 | 4780 | " | 19.21 | 13400 | NR | 50-150 | 60.7 | 30 |
| Surrogate: 1-Chlorooctadecane | 0.00 | MI, U | | | " | 3.842 | | % | 50-150 | | |



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RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
May-16-16 11:18

Notes and Definitions

MI Matrix interference

K The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value.

J The identification of the analyte is acceptable; the reported value is an estimate.

U Not Detected

NR Not Reported



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5 CHICAGO REGIONAL LABORATORY
536 SOUTH CLARK STREET
CHICAGO, ILLINOIS 60605



LABORATORY
ACCREDITATION
BUREAU
ACCREDITED ISO/IEC 17025
Certificate # L2280 Testing

Date: 6/8/2016
Subject: Review of Region 5 Data for Ortek
To: RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604
From: Colin Breslin, Chemist
US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with EPA's *Guidance on Environmental Data Verification and Data Validation* (Document EPA QA/G-8), CRL verified and validated the data but does not perform data quality assessment based on project plans.

This report was reviewed and the information provided herein accurately represents the analysis performed.

X Col Breslin 6/8/2016

Please contact the analyst with any technical report issues, Robert Thompson at (312)-353-9078 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.

Attached are Results for: Ortek

Data Management Coordinator and Date Transmitted

Analyses included in this report:

Ignitability by Setaflash



Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone: (312) 353-8370 Fax: (312) 886-2591

RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
Jun-08-16 14:18

Analysis Case Narrative

General Information

Two samples for the analysis of Ignitability by Setaflash were received at the Chicago Regional Laboratory (CRL) on March 31, 2016. There is no holding time for ignitability. The designated analyst, Colin Breslin, can be reached at 312-886-2912.

The samples were prepared and analyzed according to CRL SOP AIG048A Version #2 (SW-846: 1020B).

Sample Analysis and Results

The results in this report were reviewed against the Quality Assurance Project Plan for Ortek, Inc., which was dated February 26, 2016. In the absence of customer-specified Data Quality Objectives, the Chicago Regional Laboratory defaults to the analytical Standard Operating Procedure (SOP) method detection or reporting limits. The data reported herein meet the limits referenced in CRL SOP AIG048A Version #2 (SW-846: 1020B).

Sample with CRL sample ID 1603050-12 (Sample Name: 3301604L) required phase separation. The original sample container was amber, which made it impossible to determine that the sample required phase separation until pouring out an aliquot for analysis. This aliquot could not be analyzed, could not be phase separated, and could not be returned to the original sample container. CRL SOP GEN003 Version #2 was followed for the phase separation procedure. The phase separation required transferring the original sample to a clear glass jar before separating the top phase and bottom phase. The top phase was assigned CRL Sample ID 1603050-14 and the bottom phase was assigned CRL Sample ID 1603050-15. The analysis of CRL sample ID 1603050-12 was cancelled. The phase separation was problematic because residue of the sample remained in the original container, which could not be removed and analyzed due to insufficient quantity. It is likely the residue left behind did not impact the final results. However, since this residue was not amenable to testing it is not possible to say with complete certainty whether it would or would not have flashed. The final results were not flagged for this issue, but was mentioned here for consideration in the final evaluation of this data for its end use.

Sample with CRL sample ID 1603050-13 (Sample Name: 3301605L) did not require phase separation. Samples 1603050-13, 1603050-14, and 1603050-15 did not flash at 140 °F. The final results were reported as No Flash at 140 °F.

Quality Control

All Quality Control (QC) audits were within CRL limits for the requested analytes or did not result in qualification of the data.



Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone: (312) 353-8370 Fax: (312) 886-2591

RCRA, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Ortek
Project Number: [none]
Project Manager: Brian Kennedy

Reported:
Jun-08-16 14:18

ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|------------------------------------|---------------|--------|-----------------|-----------------|
| 3301605L | 1603050-13 | Water | Mar-30-16 14:49 | Mar-31-16 10:15 |
| 3301604L (1603050-12 top phase) | 1603050-14 | Other | Mar-30-16 14:30 | Mar-31-16 10:15 |
| 3301604L (1603050-12 bottom phase) | 1603050-15 | Other | Mar-30-16 14:30 | Mar-31-16 10:15 |

Ignitability, Flash Point, EPA 1020B (modified)
US EPA Region 5 Chicago Regional Laboratory

3301605L (1603050-13) Water Sampled: Mar-30-16 14:49 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------------------------|----------|-----------------------|-----|--------------------|-----------|----------|---------|-----------|-----------|
| Ignitability by Flashpoint | No Flash | | | | Degrees F | 1 | B16E092 | May-24-16 | May-24-16 |

3301604L (1603050-12 top phase) (1603050-14) Other Sampled: Mar-30-16 14:30 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------------------------|----------|-----------------------|-----|--------------------|-----------|----------|---------|-----------|-----------|
| Ignitability by Flashpoint | No Flash | | | | Degrees F | 1 | B16E095 | May-26-16 | May-26-16 |

3301604L (1603050-12 bottom phase) (1603050-15) Other Sampled: Mar-30-16 14:30 Received: Mar-31-16 10:15

| Analyte | Result | Flags / Qualifiers | MDL | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed |
|----------------------------|----------|-----------------------|-----|--------------------|-----------|----------|---------|-----------|-----------|
| Ignitability by Flashpoint | No Flash | | | | Degrees F | 1 | B16E095 | May-26-16 | May-26-16 |



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Reported:
Jun-08-16 14:18

Notes and Definitions

NF No Flash
U Not Detected
NR Not Reported



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

April 5, 2013 Meeting with Ortek, Inc.
Sign-In Sheet

| Name | Affiliation | Telephone Number and Email Address |
|--------------------|----------------------|---|
| Mike Beedle | EPA | 312 353 7922 beedle.michael@epa.gov |
| Brenda Whitney | EPA | 312 353 4796 whitney.brenda@epa.gov |
| Lowell Augherbaugh | ORTEK | 7601 W. 47 th St. 708-762-5117 7601 W. 47 th St |
| Laurie Witter | Ortek | 708-762-5117 |
| Ken Sullivan | Counsel for ORTEK | 312-627-4085 KSullivan@trasklpc.com |
| Brian Kennedy | EPA | 312-353-9383 kennedy.brian@epa.gov |
| Bob Peckley | EPA | (312) 353 4810 peckley.robert@epa.gov |
| | | |
| | | |
| | | |
| | | |

Ortek, Inc. Sampling Event 3/30/2016
ILD0000646786 BJK

7530-00-274-5494
FEDERAL SUPPLY SERVICE
(GPO)

Ortek, Inc. 3/30/16 ILD0086467PL

- Arrived at 9:30 AM, went to lab to open w/ Jamie Paulin and Brenda Whitney
- Laurie Witter, Office Manager
- Bob Kolar, metal entrance
- Accuren - tank integrity testing, thickness testing
- Rapps - RCRA tank closure activities
↳ Mike Rapps, contact Jeremy?
- Tomorrow morning, evicting court meeting?
↳ said he would send paperwork to EPA
- Wastewater treatment plant operational on and off
- Used oil / city wastewater is still taken in somewhat
↳ a lot of metalworking fluids
- O.I. / water separator on site, may operate occasionally
- Rapps has not been on site to look at RCRA tanks → may come out
- Requested "letter" for possible evicting, Accuren, Rapps contacts

- Since Lowell started working, Ortek has shipped off ~ 250 semi-trucks worth of contaminated soil
- Bob Kolar - met initially at front
- Asked Lowell to tell Kevin or contact me directly about the outcome of the eviction hearing tomorrow
- Explained that we want to see secondary containment, RCRA tanks, and that we would sample soils
- Offered to provide duplicates to Ortek, Lowell declined

Site Tour

- WWT plant - inside containment
- DAF tank
- Outflow into the ~~drop~~
- Stormwater is kept in tank, then treated, discharged to the sewer, as well as treated process water
- Take 4 photos inside WWT containment area
 - facing west, facing south, facing southwest, and facing ISCO
- Take 100 containment area
 - mostly full - Lowell said in addition to 80,000 gal of sludge
 - rain water collected → sent to WWT
- 3 photo - 1 of tank - south
 - 1 of containment north west
 - 1 of sludge channel

- 1 tank 101
- 1 of triple basin
- 1 GW monitoring pipes / old GAC

- 1 facing west south side of wooden fence
- 1 facing west of soil piles
- 2 inside sludge pit of RR tracks
 - 1 container w/ oily residue
 - 1 first roll off
 - 1 overall facing east
 - 1 second roll off facing NW
 - 1 photo waste roll off

South tank farm

- w/ RRA tanks
- Walk through containment - saw RRA tanks and photographs, some in use, some not
- Tank 101 in use
- Far east end of containment - ^{old} GAC
 ↳ with use
 Now used as a sump

~~South~~ South of south tank farm

- Area with puddles, some w/ contaminated soil
- Dig up material, soil
- Old RR track - had sump w/ accumulated oily sludge, ^{Container w/ sludge}
- Two roll offs, covered w/ ply wood
 contain oily sludge and soil
 ↳ Lowell says these are shipped off-site to a near-by land-fill

- Southwest corner of property
- In between RR tracks, underneath power lines
- Appears to be fill material
 - ↳ dark stained, appears to be oil

Took 3 photos of area

- 1 facing east
- 1 facing southwest
- 1 facing southwest

SAMPLING. 3/30/16

Notes: Brenda Whitney
Sampler: Brian Kennedy
Jannice Paulin.

3301601

| Sample # | Time | RAINING. |
|------------|---------|----------|
| ① 33016-01 | 1:40 pm | |

Area SE property by Tanks
7/8/9/10 outside of containment
By power lines

photo 28' 53"

Disposable scoops. Alternate scoop
Soil sample 10 scoops each.
2 32-oz jars 2 8-oz jars.

② 3301601 SCE - Split sample for COMED. 3 scoops each.

③ 3301601 M

④ 3301601 SMCE

} 8-oz 3 scoops.

Sample is soil - slightly darker
than surrounding soils

photo 1 - initial photo - pre sample
2 - post-sample photo
3 - scene south of sample
4 - scene north of sample

BW

3301602

Time 2:02pm 3/30/16

photo - initial pre sample

photo - post sample

Sample # photo - site south

① 3301602 (32oz) photo - site north

② 3301602 S CE (32oz)

③ 3301602 M

④ 3301602SMCE Soil Matrix - dark staining
from a small pile of clay/gravel/soil

odor from the sample. aromatic
south of tanks 125 outside of
containment. North of tracks.

Alternate scoops.

2 32-oz jars. 9 scoops. for both

2 8-oz jars. 3 scoops. each.

Jamie collected sample

Brian assist

BW

3301603

3/30/16

2:20 pm

Rail line sump south end of facility
Beneath rails. Grating opening.
black Solids / sludge / mud over water / liquid.

Otorous -

7 scoops. No alternate scooping.
NO SPLIT.

1 32 ounce jar

1 8 ounce jar 4.5 scoops.

only sheen started to appear after
sampling took place.

① 3301603 (32 oz)

② 3301603 M (8 oz)

28" 44" photo 1 - pre sample
photo 2 - post sample
photo 3 - site North
~~photo 4 - SW~~

Jamie collected sample
Brian assist

BN

According to Lowell, the material in the ROB was generated from soil excavation when concrete secondary containment was put in.

Jamie collected
Brian assisted

3301604

2:30 pm

- photo 1 - Southern roll off outside
- photo 2 - Both North and South Roll offs
- photo 3 - liquid on solids in ROB
- photo 4 - wider view of waste in ROB
- photo 5 - Box # 2090 South box
- photo 6 - Southeast corner of 2090 ROB
leak and staining on ground.

4 samples total.

Roll off South. 2090.

- ① 3301604 32-ounce 6 scoops.
Solid sludge Black tarry soil
odorous aromatic
- ② 3301604 M 8-ounce. ^{BW} ~~no scoop count~~
4 counts. scoops.
- ③ 3301604 L 16-ounce. ^{no scoop count}
liquid supernatant
- ④ 3301604 ML 8-ounce. ^{no scoop count.}
liquid supernatant

liquid samples are oily colored.
emulsified oils
light brown and
dark brown. Aromatic

2:46 pm

photo 7 photo 8 - duplicate photos post
Sample

3301605

photo 1 - Roll off Box # 20103 (North Rob) 2:49 pm
photo 2 - Sludge inside box
photo 3 - Liquid inside box.

Solids have same characteristics as.

3301604.

liquids

3301605 32-oz 6 scoops.

Solids

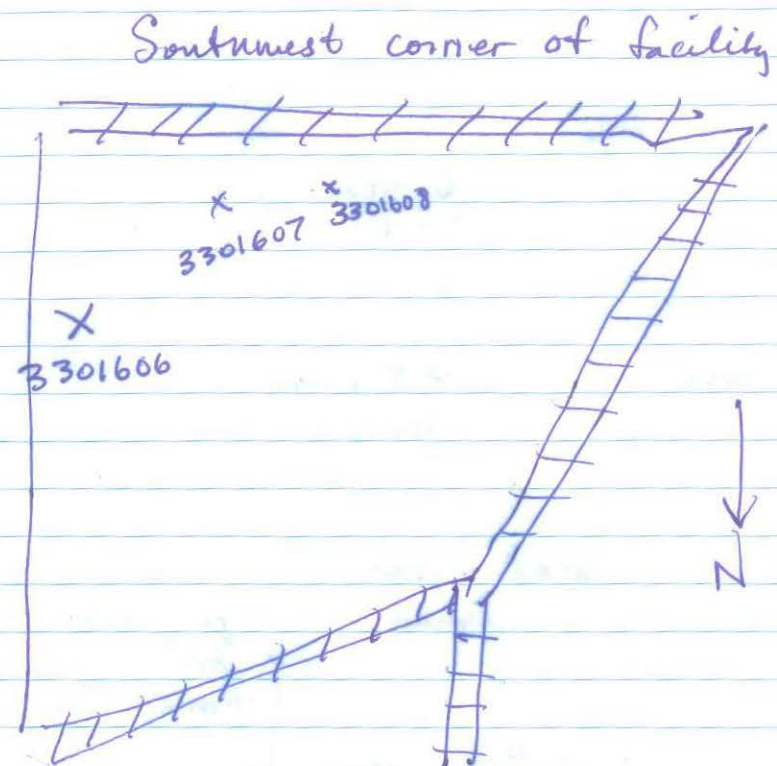
3301605M 8-oz 3.5 scoops.

solids.

3301605L 16-oz amber
liquids

3301605ML 8-oz clear
liquids

} green tint and.
brown tint.
translucent, but not
clear.



3301606

28' 33"

Area South of fence line.

- Southwest most corner of facility.
- Filled in area with limestone cover (per Lowell)
- Areas of dark stained soils visible.
- Beneath power lines

Next 5 samples are surface soil samples of darkly stained areas.

photo 1 = overview of area more SE

photo 2 = overview of area more SW

petroleum odor.

- ① 3301606 32 oz clear 3:21 pm
solids / sandy / clay
dark brown / black.
9 scoops Alternate scooping with 3301606 SCE
- ② 3301606 SCE 32-oz jar clear
9 scoops
- ③ 3301606 m 8-oz clear jar
3 scoops Alternate scooping with 3301606 SMCE
- ④ 3301606 SMCE 8-oz clear jar.
3 scoops.

photo 3 = post sample picture.

photo 4 = Area photo facing East

3301607 28' 31"

Same general area as 3301606

- Soil sample with dark staining
- sandy composition, brown not black
- not as strong odor as 3301606

3:36 pm

3301607 - soil sample

32 oz jar clear wide mouth

Alternate scooping with 3301607SCE
↑ scoops

3301607 SCE - 32 oz jar
↑ scoops.

3301607 M - 8 oz jar clear wide mouth
soil

3 scoops Alternate scooping w/ 3301607SCE

3301607 SMCE - 8 oz jar
3 scoops soil

photo 1 - pre-sample photo

28'28" photo 2 - post sample photo

photo 3 - area photo facing North

3301608

photo 1 28' 26"
pre-sample photo

Soil sample - dark brown/black.
stained soil
- odor aromatic^{sweet}/petroleum

3:47 pm

3301608 soil sample
32-oz clear wide-mouth jar
alternate scooping into 3301608SCE
8 scoops

3301608 SCE soil sample
32-oz clear wide-mouth jar
8 scoops.

3301608 M soil sample.
alternate scoop with 3301608SMCE
3 scoops

3301608 SMCE soil sample
3 scoops.

photo 2 - post sample photo

photo 3 - post sample area
photo facing north.

3301609

This sample is further to the west
in same area as 3301606, 7, 8

light brown sandy/clay with
black staining, thick/heavy
Aromatic

4:04 pm

3301609 - soil sample
split scooping with 3301609 SCE
8 scoops

3301609 SCE
- soil sample
8 scoops

3301609 M - soil sample
Alternate scoop with 3301609 SNCE
3 scoops

3301609 SNCE
3 scoops.

photo 1 - pre-sampling
photo 2 - post sampling.
photo 3 - post sample area view
facing north.

Area is covered in fresh-looking
limestone gravel

3301610

28' 20"

4:14 pm

Sample taken from packed dark brown
soil with clay consistency
Similar coloration to 3301609 -
10 ft West of it.
Also surrounded by fresh limestone
granular consistency.

3301610 petroleum odor
soil 32-ounce jar ^{clear} white mud
Alternat scoop with 3301610 SCE
8 scoop

3301610 SCE 32-ounce jar clear white mud
soil ~~At~~ 8 scoop

3301610 M 8-oz clear white mud
soil Alternat scoop with 3301610 SCE
3 scoop

3301610 SMCE 8-oz clear white mud
soil 3 scoop

4:29 pm 3301610 DUP 32-ounce Amber narrow
soil no split
14 scoops

3301610 M DUP 8 ounce clear white mud
soil no split
3 scoops.

Ortek Sampling Event Follow-Up Notes – Brian Kennedy

BK

4/4/2016

Sampling event occurred 3/30/16

Sampling activities commenced after lunch at approximately 1:00 PM. Samples were taken from piles of soil south of the southern tank farm, from two roll-off boxes located on the southern half of the properties, from the railroad track sump on the southern line of the property, and from the area of concern at the southwest corner of the property.

Sampling activities ended around 4:30/5 PM, and bagging and tagging was done in the trunk of the van for the next hour and a half. It began to rain heavily and materials were getting wet, so we found Lowell and told him we had to leave for the day. This was approximately 6:30 PM. We told Lowell we don't plan to come back the following day, and Lowell asked about RCRA closure should Ortek have to vacate the site. I told Lowell I couldn't answer that question at the moment.

We drove off-site to a nearby gas station where we finished bagging and tagging the samples underneath cover from the rain. We purchased ice and placed it into two coolers, one for EPA samples and one for ComEd splits. The coolers were sealed shut with the ice and taken back Jamie Paulin's residence, where they were kept in the van in her garage until the following morning when they were turned into CRL.

Ortek Inc.
ILD000646786
7601 West 47th Street
Mc Cook, Illinois

7530-00-274-5494
FEDERAL SUPPLY SERVICE
(GPO)

Ortek 10.1.10

Mr. Dec 9, 2011 Lowell Olowe
Danie Spader took off similar business Lowell Hughesbaugh
business partner Lowell Hughesbaugh
Bob Robert Kolar 1981
project manager Laurie Witter
Distillation taken

Use^{to} Recycle used oil
Crank case oils

Did it for Future Fuel company in Montana

Jan 2010 or Jan 2009

Stopped

Use take in crank case oil
check H₂O Flash PCB
Chlorine

Distillation tower
Made gas oil
C15-50

Used to make lube oil years ago

Don't run it that often

Collecting oily waste waters
top layer of oil

run Chlorine run PCBs
after they get enough oil
reject it high.
Mostly oil water

Different company Machine
shops
spills water w/ little oil
permit to discharge water
to Sanitary District

oxford - Chlorine sulfur
check and use oil

3 people - 7 total

Eight hrs^{day} - 5 day week

Emergency at night

3 main ^{transporter} feature -
North Branch Env.
Turkey
H&Z Chem

Years ago had truck 1980's
water

(3) 12/9/11

sample to one tank
keep segregated

have rejected high chlorine
let them know they do

put in tank

oil comes to top
send water to
Waste Water Treatment
no treatment
solids stay in tank
discharge water

oil in tank

drawn water off

add chemicals

treat w/ caustic pH 7-9
helps separations

add chemicals
add alumina
some polymer

sell or give back to
customer

Don't know - need ask later
might be paid

Bring in Used Antifreeze
Laurie Knowles
different

✓ Antifreeze sent it
out to a lab
tested was worse

Filter it take oil
out of it
good enough for 50/50
Blend
Additive package to add

package it up on site

There is company using labels
that's putting out crap -
2% glycol - it freeze

Sludge build up in tanks
in tanks

Antifreeze sock that material

(5) 12/7

Tou ✓

Start to
Flash point
on oils sending at

They reject gasoline

Package
Super XXX safe

GC expert looked

it down GCMS

Send sample out
from site ✓

Oxford sun

pH paper

Tank 101 Labeled used oil

Boiler room tanks
no record of contents

for finished products
and additive

Tanks 123

dehydrate water off

Triple Basin
pic

waste oil st

Crack oil

Triple basin separate
| dirt

pumped - 101 123 456

take water off
Send WWTP

One of these tanks

Ill Recovery Group
Franklin Park
Morris

12/9

Going to Morris

Storage Tank

Then sell asphalt
Company stock up

Zach Petry
Burner fuel

Oil 728

8-10 monitoring wells

lift station pit

Triple basin

oil storage

Lift station 9

Sludge from buckets

~~trouble~~
Sludge from loading offload

Tank sludge 3/4 full

Tank 100 - ppe
to triple basin

pick ups
room event
spill future helped out
2 summer ago

turn key
Brandon Miller
not wastewater

Overst shock
Numerous drum

Tank 400

API Separator

WWTP

No chemical
just physical
separation

9 12/9

oil recovery
at WWTP

pumped back to 323

Tox idies Natural gas
humor huge
not working
test fire off
flame eventually

3 stills
not operating

Diagram -

Used oil manifests
Anti freeze

Analytical -
material some of it recovered

shipped off site analyzed

Analytical Plan

Brecond Report

net w/ Lawrence
Future oil w/ Bob
7,82400

400 - used oil distillates
was going to lease

Tanks 7-8
Future drops off oil
used oil

Dec 2009
- 2 years has not processed
Future stuff

All waters go through triple
basin ~~off~~ goes tank 101
Tank 101 water taken off
goes to WWTP
oil goes another tank
water tank then
if dry enough for customer

Sell it Illinois Recovery
Future

11 12/9

Chlorine pH
BSW
distillation on some of it
everything

turn key
Hatchman

708 762-5117
Lawrence

Lawrence Donot get analytical
w/ water shipments

2pm

12/14

12/14/11

1:30

Antifreeze is coming
as oily waste
not into water system

couple times monthly

no drums

process antifreeze to make
new antifreeze

Separate oil and glycol

filtered adjust pH

then additive package

Surfactants and more glycols

bottle up

Super XXX - Maren Kohrtiv
Under his label

Not part Voyager Petroleum

Kutter

Voyager comes up on
web search
of Super XXX

12/14 13

Antifreeze stays for awhile

Sits month for separation

process filtered
add dye pH adjust

Jose used to keep

future Env.

Makena IL

portage IN

look

future

Antifreeze

2009

2011

Package gallon Jugs

twice a month

depending on demand

Clont Oil - future
if running tower

400

three tanks 748

do no processing of this oil

12/14

Future Stated
more than 35 days
1/1/14

November 2010
Per Scale

230,000 gallons
Tank 250,000 gallons

Future Gettle Lemp
owner
Jim Tietz VP 708 479 6890
708 479 6890

Waste

Vacuum Distillation
Tonaka Gas Oil
Synthesized processed by another
company to make gasoline

12/14¹⁵

Used Oil
BDL

Antifreeze manifest
Waste manifest

Oct 28/2011 RS inc
Inv'd from Bill Kennedy

Bill @ rsusedoil.com

Alan Kalmar

R3 Env

630 917 4012

Haz
Waste

on manifest
RS generated
Site Diteck

T120 14,000 gal

T122 18,000 gal

T146 19,000

Business Card

William Keme
Director Safety & Comp

708 534 9300

Crystal Cyber.com

Unlabeled
Waste
RS

12/14

Bob Course
had program
drop and pickup
material

Tank 500

~~many people off~~ VMB

Course

sent off site

could not use spec

Manifest
Spreadsheet

Entered into

Entered

at least weekly

every other day

analytical every day

12/14

12

Waste water
oil

Monitors
Answered list

Trans Alachua doing trans

Trans Turnkey

Trans North Branch Env
Roselle

Rejected from Klean Water
Griffin IN

12/14/11

Ended 4:15

12/21 111 ^{Start} 2:00 pm

Get chemicals Used In Lab
And disposition
Toluene - Acetone - goes into bucket ^{put with flash}
Site reflects gasoline incoming
use Bench distillation Toluene and acetone.
Met Bob Kolar
at 2 PM

Run Chlorine on everything
except food.

So not antifreeze coming in

run chlorine on water

Oxford Xray RF

Down recently

fixed worked good for few
days not working again

Setting on few waters reaching
in -

Centralized wastewater treatment

12/21 Flash is done when there is cause to (9)

for Bob he thinks CWT
water

Up to Lowell to hire somebody

Tomie Spide left no env.
person compliance

Tomie & Lowell did most
of the Env

Vacuum distillation that
is what Bob was hired for

Not hired for environmental compliance

Turk Key - doil ^{wood} WW

North Branch WW

Future Oil + WW + some another

Horz chain - WW used one gas oil

Ill Recovery Group - Oil and WW

run RS - Oil + water
Chlorine PH

run out ^{water from} ~~Etanol~~ Oil
from collect oil to sell or fuel
or whatever they want to do it

Check w have antifreeze

next you make

Bottle oil & anti-freeze soil to more

12/21/2012

Work Antifreeze - future

New World Sales
Moran Kaha Trib

Who receives

Laurie
not really taking material
in because Oxford Down

Will bring water and oil
when Oxford -

Solids removed

3 years ago - maybe 4,000

Best Environmental

might have come in take
the solids

Tanks 7 & 8

future few days week at most

Storage

Tank 400 - more than 35 days

12/21/2012

(21)

Summarized - issue to Laurie

Greenglass - chemicals

secondary containment of used oil tanks

RS - manifests -

high chlorine

Lowell Oct 16 2012 - release date

Add caustic if need to bring pH up
no polymers at late
3 or 4 yrs or more

Alum is added for

some waters. separate ^{at least} 1 inch
Add AS 301 to break emulsified
waters

Drop out or float up stuff

1-6

3 - 5000 gallons
of wet oil tank

0.01

0.200

0.1

1000 ppm = 0.1%

100 ppm = 0.01

10 ppm = 0.001

1490

End 4:30

Inspection Followup 1/30/12 (23)

1-30-2012 2 10:15 AM
10:35 AM

Follow up XRF
Rebuttable presumption

Two containers
used at 20 containment
containers increase should

Summary:

Secondary containment
containers and tanks
Rebuttable presumption issue

hor waste shipments

profile data

XRF

Bob 14 ml

Oxford Lab 3000

filling line

Scale Ticker # run
run pH

1-30-12

PLB outank

When read to send to it

Send PCB out

PH w/PH paper-

Ticker 9707 1-30-12

4,000 gall

Cl 124

Manifest 001685577

turn key trans

16800014600

Chicago Aerosol

cool city

gen 0620 2003004

1/30/12

(25)

RS ID#

Bob -

Laurie -

Brought oil on
saw it was OK

claim because halogen
level high took it

Bob Total chlorine too high
Laurie told them told pickup
Ortek can not use
them
Laurie did not why hazardous

Bob or Laurie

Did not know about

RS getting ID#

for Ortek site

could No lease -

watched Bob

Take in sample

PH and Cl-

1/30/12

Jan Manifest

Night shift
rotate 3 people weekdays night
3 closed weekends

Most day drop oil
into 101

In tank 4-6
Emptying 101

transferred some out 101

Put some B2
126 127 from 101

Take off H₂O

Dry adding chemicals

drop off ~~water~~ less chemicals
H₂O first

1/30/12

(27)

Had sample in lab

Tank 300
OUT to flush oil

Mechanical seal pump

System maintained

Tank 323 API
oil + water separator

thick water

API 90% H₂O to 323

143 - Let oil from 2 years to when they ran
Distillation Crank case oil

144 - Hot clean mostly dry
little bit of wet

Low temp making effort 20 cent
for tanks 143 tanks

End summary couple of issues
2 12:30 WBS
2 12:50 WBS

End

March 4, 2013

Brian Kennedy
US-Environmental Protection Agency – Region 5
77 West Jackson Boulevard, LR-8J
Chicago, IL 60604
(312) 353-4383

RE: Notice of Violation, Compliance Evaluation Inspection
EPA ID No. ILD000646786

Dear Mr. Kennedy:

Ortek, Inc. has received your letter of January 24, 2013, and as requested, is providing the following responses towards compliance concerns identified by the USEPA. The USEPA reports that they inspected the Ortek facility on December 9, 14, and 21 of 2011 and January 30, of 2012 with the purpose of evaluating compliance. Our responses for issues identified by the EPA are in the same numerical order presented in the January 24 EPA letter, as follows:

- 1) "Owner/operators must have a contingency plan ...". "However, if the owner or operator already has an SPCC, they need only amend that plan to incorporate used oil management provisions that are sufficient to comply with the requirements of 35 IAC 739.152(b). See 35 IAC 739.152(b)(2)(B) [40 CFR 279.52(b)(2)(ii)].". Ortek will note here that this part of IAC and/or 40 CFR deals with;
 - a) (iii) plans and arrangements agreed to by and/or with local police departments, fire departments, hospitals, contractors and so forth to coordinate emergency services...
 - b) (iv) listing of names, addresses and phone numbers of all persons qualified to act as emergency coordinator(s) ... and must be kept up to date,
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RESPONSE: Ortek has taken the EPA's evaluation in this matter to heart and has and continues to update our SPCC to be sure we cover (or have covered) these items more adequately. Although an older copy of the SPCC may have been presented to the EPA during their inspection of the Ortek facility whereby names, phone numbers were not updated, Ortek believes we have met the intent of these regulations (more thoroughly now), but will agree that some of our verbal agreements and/or arrangements with local police, fire departments and so forth were possibly not well described or documented (although co-operation with these entities to-date has been excellent, e.g. local police, fire departments, emergency contractors, and/or hospitals).

- 2) "In order to operate as a used oil processor, containers used to store or process used oil must be equipped with a secondary containment system ...". [regulation quoted = 40 CFR 279.54(c)(1) and 35 IAC 739.154(c)(A)] "At the time of inspection, [the EPA observed] two 5-gallon pails and one 55-gallon drum near the off-loading pump near the 500 series tanks that were not in secondary containment."

RESPONSE: Ortek is trying to store, or keep all 5-gallon pails, drums or totes on secondary containment hence forth. Furthermore, we have and continue to train/instruct our employees making them more fully aware of this matter. EPA item number 4 below is similar and further describes that labeling of such pails, drums or totes as "used oil". Ortek often uses the 5-gallon pails as "secondary containment" in a mobile form, for example when sampling a storage tank, the pail is placed under the tank's sample port during sampling collection to help prevent any uncontrolled leakage. Pails are also utilized under pumps, seals, pipelines, or tank, truck or hose-connections, to again help prevent any uncontrolled release. Five(5) -gallon pails, are widely utilized at the Ortek site with the intent of environmental regulations in mind to help us prevent uncontrolled releases to the environment, unloading pad, ground, concrete, or wherever a 5-gallon pail could help prevent some drips from reaching the ground. Again, for us, we see it as a "mobile secondary containment" form. Over the weekend, employees of Ortek, observed a crude oil pickup in southern Illinois, in which the crude oil storage tanks were located on dirt with a dirt berm, and the truck pumping the crude oil from the storage tanks to his truck (located outside the berm on bare ground) used a long 3-inch hose to pump the storage tanks out. No secondary containment was under the truck, hose, or connection, nor were any spill pads or pails used. Gasoline is delivered to gas stations all across America in a similar manner, yet used oil is more regulated (??) than these "products"? Regardless, Ortek has taken the USEPA's concerns to heart and again will be more careful of how our 5-gallon pails, along with other storage containers, are used and stored.

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The ground of Ortek's site contains "impervious" clay meeting the definition suitable for owning and operating Hazardous Waste Landfills (permeability of 10^{-7} cm/sec.). The fact that some of Ortek's surface soil (clays) have been contaminated in the past (under previous ownership) with presumably used oil, probably only further enhances the impervious or "secondary containment" ability, acting in a more impervious (sealed) design. Roofs, and highways are sealed with petroleum products. I see our dike(s) in a similar light. In addition, the entire site is "bermed" and has been estimated to be able to hold millions of gallons of liquid before possible overflowing off-site based on surveying elevation work, and as documented during a flood in the late 1970's in which the site held in excess of 3-million gallons of liquids due to a Corps of Engineers flood control berms being breached up-river by excessively high River levels (flooding).

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RESPONSE: Ortek has labeled all containers with used oil stickers. (also see response #2 above).

- 5) "To ensure that used oil is not a hazardous waste under the rebuttable presumption ... the owner or operator must determine whether the total halogen content of used oil managed at the facility is above or below 1000 ppm ...". At the time of the inspection, Ortek's Waste Analysis Plan / Material Profile Sheet (Part J) mentions the rebuttable presumption for used oil, but does not request a total halogen determination for the used oil or request a basis for

knowledge of the used oil's halogen content. "Part J also does [or did not] provide a location where total halogens may be recorded, nor is there a location elsewhere on the sheet. Total Halogens are not mentioned elsewhere on the Sheet".

Additionally, Part C of the sheet requests general information of documentation about the process or its materials used that could lead to an accurate determination of the used oil's halogen content, e.g., the chemical composition of the virgin oil, whether used oil from the same process had been previously analyzed and where to find such information, a certification from the generator that the total halogen content of the used oil is below 1000 ppm, or if the used oil had been mixed with other waste streams on the generator's site. Information requested on the "material profile sheet" does not allow Ortek to properly apply knowledge of the halogen content of the used oil in light of the materials or processes used, nor is it adequate to rebut the presumption of used oil mixture with halogenated hazardous waste listed in Subpart D of 35 IAC 721 (40 CFR Part 261). Ortek, therefore is [or was] in violation of the abovementioned requirements.

RESPONSE: The USEPA field representative during one of his inspections pointed out to one of Ortek's employees that he felt our material profile sheet was not adequate or complete and needed additional information specifically in Parts J and Parts C. We took the EPA's advice and added to our material profile sheet almost immediately (over a year ago) to make it more complete or adequate. For the USEPA to state that Ortek is or was out of compliance for not having a perfect, revised, or updated material profile sheet, Ortek may object to, as the sheet was still utilized in an attempt to understand the waste stream being submitted to Ortek. Regardless, our material profile sheet has been updated/revised, and Ortek takes to heart the EPA's position that the additional material added to the profile sheet will or should better help us all make more informed decision regarding each waste stream in question.

- 6) "In order to operate as a used oil processor, owners or operators must ensure that used oil managed at the facility is not a hazardous waste by determining whether the total halogen content is above or below 1,000 ppm. If the used oil contains greater than or equal to 1,000 ppm total halogens, it is presumed to be a hazardous waste because it has mixed with halogenated hazardous waste. The owner or operator may rebut this presumption ..."

"Test results performed by Ortek on several [three] watery oil streams indicated concentrations of total halogens over 1,000 ppm".

RESPONSE: Ortek has spoken with the employee that tested these three watery oil streams for total halogens and we don't have a reason why results that show over 1000 ppm total halogens would be permitted into the facility, especially without analytical readily available that could have rebutted the presumption. Additionally, we don't know why this employee would show the EPA all the information that he made available to the EPA during the EPA's field inspections (basically all of our incoming waste streams and total halogen results) (thousands of total halogen results, with these 3 being over 1000 ppm) if he knew that this could potentially cost him his job, our livelihood, a regulatory fine, being shut-down or other ?? The employee admitted that he may have even wrongly transcribed the results to the computer following his total halogen analysis wrongly. Regardless, Ortek had considered firing this employee who now has over 30-years with the company, and re-hiring, but we have chosen to make it very clear to him, that any stream over 1000 ppm total halogens can-NOT be allowed into the Ortek facility (we already thought this was clear, and he admits it was), especially without analytical rebutting

the presumption that it could be hazardous. Going forward he (and/or any lab worker) knows that NO potential waste stream is allowed to enter the facility that exceeds 1000 ppm total halogens (without a rebuttal showing it is not hazardous), as any such employee will be fired, should that happen in the future. We are all aware of this, and we have further reviewed historic laboratory testing procedures and acceptance policies in the laboratory, as well as double checking current laboratory reviews, analyses, and decisions of acceptance/rejection of any potential incoming waste streams (QA/QC).

- 7) "In Ortek's November 12, 2012 EPA submittal, Ortek's "most recent Waste Analysis Plan" requires revision". USEPA compliance issue number 7, is very similar to issues #5 and #6 above. **RESPONSE:**Ortek will note that we have updated our Waste Analysis Plan to describe the method by which representative samples will be or are obtained, the frequency of sampling or the analytical method utilized, and a place to denote total halogen content.
- 8) In order to operate as a used oil processor, the facility must be maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of used oil to air, soil or surface water which could threaten human health or the environment. See 35 IAC 739.152(a)(1) [40 CFR 279.52(a)(1)]". *279.22(d)*

"At the time of inspection, oil-stained soils were observed near Tanks 120-146. Oil-stained soils were also observed near the triple-basin area and lift-station, and in between Tanks 9 and 133. Ortek, therefore, is in violation of the abovementioned requirement for the general facility standards of used oil processors."

RESPONSE: Ortek quite honestly is kind of puzzled by this one and disagrees with the USEPA. Just because Ortek, like numerous other operating facilities, has contaminated soils (possibly from 50-years ago), does not mean that Ortek is in violation or have violated these regulations. Everybody would like to see the contamination cleaned-up, no argument there, however Ortek believes that we do currently meet the intent of this (these) regulation(s) which is to "minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of used oil to the air, soil or". Possibly, the USEPA was concerned with the "possibility of a fire, explosion, or". Thus, to help quantify these fire and/or explosion parameters, Ortek ran some closed-cup flash-points on some of the contaminated surface soils that the USEPA observed and describes herein, and found that they did NOT flash, ever, even up to 600 degrees Fahrenheit. We found driving our cars, and re-fueling to go to work to be more dangerous for the possibility of a fire or explosion than being at work in the areas quoted by the USEPA. Ortek, in our used oil re-refining process, distills used oil at 700-degrees Fahrenheit, under almost perfect vacuum. In our laboratory testing, we found Gasoline is far more dangerous, and it explosively flashed in our closed cup flash test, at room temperature! We found gasoline (an unregulated RCRA "product'??) to be far more dangerous with respect to fire and explosion and even potentially human health or the environment, than used oil, yet people are still smoking while they fuel up every day, crazy. We suppose, to completely minimize any threat to human health or the environment, all industry, tanks, businesses, cars, propane tanks, laboratories, construction activities, airplanes, travel, power plants, boats, gas stations, etcetera, would have to be discontinued and/or closed down.

- 9) "No person may conduct any hazardous waste storage, hazardous waste treatment, or hazardous waste disposal without a RCRA permit. See IAC 703.121(a)(1). Accordingly, operators of hazardous waste management units, including tanks which store hazardous waste, must have permits during the active life of the unit. See IAC 703.121(b) [40 CFR 270.1(c)].".

At the time of inspection, eight hazardous waste manifests indicated the off-site shipment of D001, D008, and D039 hazardous waste from Ortek Tanks 120, 122, and 146. The manifest were". [8 manifests are listed by the USEPA].

These manifests displayed the generator of the hazardous waste to be RS Used Oil Services, Inc. (RS) albeit with the site address of Ortek. When asked about the hazardous waste shipments during the inspection, Ortek personnel indicated the material originally came to Ortek in April and May of 2011 through RS, a used oil transporter which routinely brings used oil to Ortek tanks." During one of the inspections, the USEPA inspector helped himself to file labeled "RS Used Oil", without asking to review the file, and goes on to assume that what Ortek identified as 5 shipments from; April 1, May 2, 6, 9, and 17, 2011) was the [hazardous waste shipped to Ortek??].

"In response to an information request on October 10, 2012, RS Used Services provided EPA analytical tests performed by Precision Petroleum Labs, Inc. on September 9, 2011 for material in Ortek Tanks 120, 122, 132, 146, and ~~500~~. In addition demonstrating that the material were characteristic for D0001, D0007, D0008 and D039 hazardous waste". Ortek, THEREFORE, was storing hazardous waste"

RESPONSE: The USEPA has taken the approach that Ortek is guilty, whether proven that way or not. The USEPA is basing our (or Ortek's) guilt on RS USED Oil sampling method, use of lab, and the laboratory's results, and possibly other information. Ortek does not accept the USEPA presumption of guilt in this matter. For some reason, the definition for "RCRA Empty" comes to mind. Did RS have a Waste Analysis Plan, and use a coliwasa on the entire contents of each tank at Ortek? Or did RS collect a sample from the bottom 1-inch of the tank (from the "RCRA empty portion") to obtain their results? Were the results non-representative or elevated (concentrated with time) at the base of the tank, in the "RCRA empty" portion of the tank? Did Ortek's processing of this material cause it to become hazardous, or was it already hazardous when it came in??? Or did RS decide to ship/dispose of "non-hazardous" used oil as "hazardous waste" based on lab results by precision laboratories, samples obtained in a non-representative manner from the "RCRA empty" portion of the tank??? So where does the EPA go with all of this? Will Ortek then be required to "close" these tanks or areas as Hazardous Waste Management Units (HWMUs), improperly operated (in-fact this seems to be the EPA's intent or next step as they outline in question #10 below) ? Will RS Used Oil clean Ortek's site, and complete compliance issues in this matter, since they decided to label and deal with their material, stored at Ortek's site, as Hazardous Waste? How is Ortek supposed to respond to this alleged compliance issue? We have an alleged compliance issue here that theoretically can only be corrected by going back in time and altering what has already happened, but none of us can do that. Ortek can only state that for now and in the future any material above 1000 ppm total Halogens, or with any other Hazardous Waste characteristics will not be allowed into the Ortek facility, especially without a rebut of the presumption. I could sample every gas station across America, and show that they too are improperly operating as RCRA facilities storing "Hazardous Waste" for benzene, flash, and other parameters. "No", I'm told, these more dangerous gasoline materials are "fuel products", yet Used Oil cannot be called "fuel products", even

though they are often ultimately used as fuel (and may have been in this case). Resource Conservation and Recovery (RCRA), where is the intent of that? Seems hypocritical to me. Therefore, without admitting or denying any guilt in this matter or to violating RCRA, Ortek does not know how to correct the event described by the USEPA that has happened in the past, and we are alarmed/greatly concerned at where the USEPA may wish to go with such an alleged RCRA compliance issue.

- 10) The USEPA states that Ortek has stored hazardous waste at our facility and therefore, ".... must follow the regulation of Subpart J of IAC 725 [Subpart J of 40 CFR 265]. RESPONSE: Ortek believes that this paragraph (#10) is directly tied to Compliance Issue No. 9 above and has thus already been answered by Ortek (we refer you to 9 above). Again, Ortek is unclear what the USEPA wants, or where they are going with all of this, for example, is it the USEPA's desire that Ortek submit a part B RCRA application?

CLOSING:

Unlike RS Used Oil who has replaced most of their staff, gave up or lost many of their customers, and handed this matter over to their legal counsel, Ortek cannot afford to do such and is trying to work through this issue, keeping our employees and customers in-tact, attempting to save the money from using lawyers, to pay for desired improvements, such as soil cleanup, additional safety equipment, and/or installing additional secondary containment structures. Maybe we are cutting [or have cut] our own necks in doing such (i.e., not using lawyers)? Unfortunately, we have already lost at least one customer (i.e., RS Used Oil) as a result of this matter. I am most concerned where the USEPA is going in all this, as we are not a publically traded company with unlimited investor monies, and financially we are at a juncture where we are not able to make any wrong moves.

I believe we have tried to respond to the USEPA's compliance matters in the most pro-active manner that we can, fixing or addressing issues that can be taken care of. Have we not done enough in the USEPA's eyes as I'm not sure how managing Ortek or part of Ortek as Hazardous Waste Management Unit(s) will help the viability of Ortek, employees, customers, the USEPA, RS Used Oil, human health, or the general public, air, soil, or water?

Should you or anyone at the USEPA have any questions or comments, please do not hesitate to contact me, or Ortek at (708) 762-5117.

Sincerely,

A handwritten signature in cursive script, appearing to read "Lowell Aughenbaugh".

Lowell Aughenbaugh
Ortek, Inc.

October 1, 2012

CERTIFIED MAIL / RETURN RECEIPT REQUESTED

Mr. Michael Beedle

U.S. Environmental Protection Agency
77 West Jackson Boulevard
Chicago, IL 60604-3590
(312) 353-7922

Re: Request for time extension
EPA ID No.: ILD000646786

Dear Mr. Beedle:

Ortek, Inc. has received your request for information less than three weeks ago, and are hereby requesting a 30-day extension to gather the information you have requested and make our formal response. Since receiving your letter, we have been working and continue to on the tasks and information you have requested, but find that we require more time. Should you have any questions regarding this matter, please do not hesitate to contact us as (708) 762-5117.

Sincerely,



Lowell Aughenbaugh
President
Ortek, Inc.

LA:ltw

cc: Kenneth M. Sullivan – Tressler LLP (KSullivan@tresslerllp.com)

March 4, 2013

Brian Kennedy
US-Environmental Protection Agency – Region 5
77 West Jackson Boulevard, LR-8J
Chicago, IL 60604
(312) 353-4383

RE: Notice of Violation, Compliance Evaluation Inspection
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- 5) "To ensure that used oil is not a hazardous waste under the rebuttable presumption ... the owner or operator must determine whether the total halogen content of used oil managed at the facility is above or below 1000 ppm ...". At the time of the inspection, Ortek's Waste Analysis Plan / Material Profile Sheet (Part J) mentions the rebuttable presumption for used oil, but does not request a total halogen determination for the used oil or request a basis for

knowledge of the used oil's halogen content. "Part J also does [or did not] provide a location where total halogens may be recorded, nor is there a location elsewhere on the sheet. Total Halogens are not mentioned elsewhere on the Sheet".

Additionally, Part C of the sheet requests general information of documentation about the process or its materials used that could lead to an accurate determination of the used oil's halogen content, e.g., the chemical composition of the virgin oil, whether used oil from the same process had been previously analyzed and where to find such information, a certification from the generator that the total halogen content of the used oil is below 1000 ppm, or if the used oil had been mixed with other waste streams on the generator's site. Information requested on the "material profile sheet" does not allow Ortek to properly apply knowledge of the halogen content of the used oil in light of the materials or processes used, nor is it adequate to rebut the presumption of used oil mixture with halogenated hazardous waste listed in Subpart D of 35 IAC 721 (40 CFR Part 261). Ortek, therefore is [or was] in violation of the abovementioned requirements.

RESPONSE: The USEPA field representative during one of his inspections pointed out to one of Ortek's employees that he felt our material profile sheet was not adequate or complete and needed additional information specifically in Parts J and Parts C. We took the EPA's advice and added to our material profile sheet almost immediately (over a year ago) to make it more complete or adequate. For the USEPA to state that Ortek is or was out of compliance for not having a perfect, revised, or updated material profile sheet, Ortek may object to, as the sheet was still utilized in an attempt to understand the waste stream being submitted to Ortek. Regardless, our material profile sheet has been updated/revised, and Ortek takes to heart the EPA's position that the additional material added to the profile sheet will or should better help us all make more informed decision regarding each waste stream in question.

- 6) "In order to operate as a used oil processor, owners or operators must ensure that used oil managed at the facility is not a hazardous waste by determining whether the total halogen content is above or below 1,000 ppm. If the used oil contains greater than or equal to 1,000 ppm total halogens, it is presumed to be a hazardous waste because it has mixed with halogenated hazardous waste. The owner or operator may rebut this presumption ..."

"Test results performed by Ortek on several [three] watery oil streams indicated concentrations of total halogens over 1,000 ppm".

RESPONSE: Ortek has spoken with the employee that tested these three watery oil streams for total halogens and we don't have a reason why results that show over 1000 ppm total halogens would be permitted into the facility, especially without analytical readily available that could have rebutted the presumption. Additionally, we don't know why this employee would show the EPA all the information that he made available to the EPA during the EPA's field inspections (basically all of our incoming waste streams and total halogen results) (thousands of total halogen results, with these 3 being over 1000 ppm) if he knew that this could potentially cost him his job, our livelihood, a regulatory fine, being shut-down or other ?? The employee admitted that he may have even wrongly transcribed the results to the computer following his total halogen analysis wrongly. Regardless, Ortek had considered firing this employee who now has over 30-years with the company, and re-hiring, but we have chosen to make it very clear to him, that any stream over 1000 ppm total halogens can-NOT be allowed into the Ortek facility (we already thought this was clear, and he admits it was), especially without analytical rebutting

the presumption that it could be hazardous. Going forward he (and/or any lab worker) knows that NO potential waste stream is allowed to enter the facility that exceeds 1000 ppm total halogens (without a rebuttal showing it is not hazardous), as any such employee will be fired, should that happen in the future. We are all aware of this, and we have further reviewed historic laboratory testing procedures and acceptance policies in the laboratory, as well as double checking current laboratory reviews, analyses, and decisions of acceptance/rejection of any potential incoming waste streams (QA\QC).

- 7) "In Ortek's November 12, 2012 EPA submittal, Ortek's "most recent Waste Analysis Plan" requires revision". USEPA compliance issue number 7, is very similar to issues #5 and 6 above. **RESPONSE:** Ortek will note that we have updated our Waste Analysis Plan to describe the method by which representative samples will be or are obtained, the frequency of sampling or the analytical method utilized, and a place to denote total halogen content.
- 8) In order to operate as a used oil processor, the facility must be maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of used oil to air, soil or surface water which could threaten human health or the environment. See 35 IAC 739.152(a)(1) [40 CFR 279.52(a)(1)]".

"At the time of inspection, oil-stained soils were observed near Tanks 120-146. Oil-stained soils were also observed near the triple-basin area and lift-station, and in between Tanks 9 and 133. Ortek, therefore, is in violation of the abovementioned requirement for the general facility standards of used oil processors."

RESPONSE: Ortek quite honestly is kind of puzzled by this one and disagrees with the USEPA. Just because Ortek, like numerous other operating facilities, has contaminated soils (possibly from 50-years ago), does not mean that Ortek is in violation or have violated these regulations. Everybody would like to see the contamination cleaned-up, no argument there, however Ortek believes that we do currently meet the intent of this (these) regulation(s) which is to "minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of used oil to the air, soil or". Possibly, the USEPA was concerned with the "possibility of a fire, explosion, or". Thus, to help quantify these fire and/or explosion parameters, Ortek ran some closed-cup flash-points on some of the contaminated surface soils that the USEPA observed and describes herein, and found that they did NOT flash, ever, even up to 600 degrees Fahrenheit. We found driving our cars, and re-fueling to go to work to be more dangerous for the possibility of a fire or explosion than being at work in the areas quoted by the USEPA. Ortek, in our used oil re-refining process, distills used oil at 700-degrees Fahrenheit, under almost perfect vacuum. In our laboratory testing, we found Gasoline is far more dangerous, and it explosively flashed in our closed cup flash test, at room temperature! We found gasoline (an unregulated RCRA "product'??) to be far more dangerous with respect to fire and explosion and even potentially human health or the environment, than used oil, yet people are still smoking while they fuel up every day, crazy. We suppose, to completely minimize any threat to human health or the environment, all industry, tanks, businesses, cars, propane tanks, laboratories, construction activities, airplanes, travel, power plants, boats, gas stations, etcetera, would have to be discontinued and/or closed down.

- 9) "No person may conduct any hazardous waste storage, hazardous waste treatment, or hazardous waste disposal without a RCRA permit. See IAC 703.121(a)(1). Accordingly, operators of hazardous waste management units, including tanks which store hazardous waste, must have permits during the active life of the unit. See IAC 703.121(b) [40 CFR 270.1(c)].".

At the time of inspection, eight hazardous waste manifests indicated the off-site shipment of D001, D008, and D039 hazardous waste from Ortek Tanks 120, 122, and 146. The manifest were". [8 manifests are listed by the USEPA].

These manifests displayed the generator of the hazardous waste to be RS Used Oil Services, Inc. (RS) albeit with the site address of Ortek. When asked about the hazardous waste shipments during the inspection, Ortek personnel indicated the material originally came to Ortek in April and May of 2011 through RS, a used oil transporter which routinely brings used oil to Ortek tanks." During one of the inspections, the USEPA inspector helped himself to file labeled "RS Used Oil", without asking to review the file, and goes on to assume that what Ortek identified as 5 shipments from; April 1, May 2, 6, 9, and 17, 2011) was the [hazardous waste shipped to Ortek??].

"In response to an information request on October 10, 2012, RS Used Services provided EPA analytical tests performed by Precision Petroleum Labs, Inc. on September 9, 2011 for material in Ortek Tanks 120, 122, 132, 146, and 500. In addition demonstrating that the material were characteristic for D0001, D0007, D0008 and D039 hazardous waste". Ortek, THEREFORE, was storing hazardous waste"

RESPONSE: The USEPA has taken the approach that Ortek is guilty, whether proven that way or not. The USEPA is basing our (or Ortek's) guilt on RS USED Oil sampling method, use of lab, and the laboratory's results, and possibly other information. Ortek does not accept the USEPA presumption of guilt in this matter. For some reason, the definition for "RCRA Empty" comes to mind. Did RS have a Waste Analysis Plan, and use a coliwasa on the entire contents of each tank at Ortek? Or did RS collect a sample from the bottom 1-inch of the tank (from the "RCRA empty portion") to obtain their results? Were the results non-representative or elevated (concentrated with time) at the base of the tank, in the "RCRA empty" portion of the tank? Did Ortek's processing of this material cause it to become hazardous, or was it already hazardous when it came in??? Or did RS decide to ship/dispose of "non-hazardous" used oil as "hazardous waste" based on lab results by precision laboratories, samples obtained in a non-representative manner from the "RCRA empty" portion of the tank??? So where does the EPA go with all of this? Will Ortek then be required to "close" these tanks or areas as Hazardous Waste Management Units (HWMUs), improperly operated (in-fact this seems to be the EPA's intent or next step as they outline in question #10 below) ? Will RS Used Oil clean Ortek's site, and complete compliance issues in this matter, since they decided to label and deal with their material, stored at Ortek's site, as Hazardous Waste? How is Ortek supposed to respond to this alleged compliance issue? We have an alleged compliance issue here that theoretically can only be corrected by going back in time and altering what has already happened, but none of us can do that. Ortek can only state that for now and in the future any material above 1000 ppm total Halogens, or with any other Hazardous Waste characteristics will not be allowed into the Ortek facility, especially without a rebut of the presumption. I could sample every gas station across America, and show that they too are improperly operating as RCRA facilities storing "Hazardous Waste" for benzene, flash, and other parameters. "No", I'm told, these more dangerous gasoline materials are "fuel products", yet Used Oil cannot be called "fuel products", even

though they are often ultimately used as fuel (and may have been in this case). Resource Conservation and Recovery (RCRA), where is the intent of that? Seems hypocritical to me. Therefore, without admitting or denying any guilt in this matter or to violating RCRA, Ortek does not know how to correct the event described by the USEPA that has happened in the past, and we are alarmed/greatly concerned at where the USEPA may wish to go with such an alleged RCRA compliance issue.

- 10) The USEPA states that Ortek has stored hazardous waste at our facility and therefore, ".... must follow the regulation of Subpart J of IAC 725 [Subpart J of 40 CFR 265]. RESPONSE: Ortek believes that this paragraph (#10) is directly tied to Compliance Issue No. 9 above and has thus has already been answered by Ortek (we refer you to 9 above). Again, Ortek is unclear what the USEPA wants, or where they are going with all of this, for example, is it the USEPA's desire that Ortek submit a part B RCRA application?

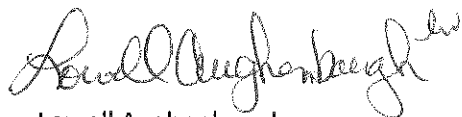
CLOSING:

Unlike RS Used Oil who has replaced most of their staff, gave up or lost many of their customers, and handed this matter over to their legal counsel, Ortek cannot afford to do such and is trying to work through this issue, keeping our employees and customers in-tact, attempting to save the money from using lawyers, to pay for desired improvements, such as soil cleanup, additional safety equipment, and/or installing additional secondary containment structures. Maybe we are cutting [or have cut] our own necks in doing such (i.e., not using lawyers)? Unfortunately, we have already lost at least one customer (i.e., RS Used Oil) as a result of this matter. I am most concerned where the USEPA is going in all this, as we are not a publically traded company with unlimited investor monies, and financially we are at a juncture where we are not able to make any wrong moves.

I believe we have tried to respond to the USEPA's compliance matters in the most pro-active manner that we can, fixing or addressing issues that can be taken care of. Have we not done enough in the USEPA's eyes as I'm not sure how managing Ortek or part of Ortek as Hazardous Waste Management Unit(s) will help the viability of Ortek, employees, customers, the USEPA, RS Used Oil, human health, or the general public, air, soil, or water?

Should you or anyone at the USEPA have any questions or comments, please do not hesitate to contact me, or Ortek at (708) 762-5117.

Sincerely,

A handwritten signature in dark ink, appearing to read "Lowell Aughenbaugh" with a stylized flourish at the end.

Lowell Aughenbaugh
Ortek, Inc.



U. S. Environmental Protection Agency
Region 5, Land and Chemicals Division
RCRA Branch, LR-8J
77 West Jackson Blvd
Chicago, IL 60604

RCRA COMPLIANCE EVALUATION INSPECTION REPORT

SITE NAME: Ortek Inc.

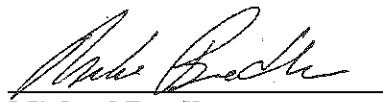
EPA ID NUMBER: ILD000646786

ADDRESS: 7601 West 47th Street
Mc Cook, Illinois 60525

DATES OF INSPECTION: December 9, 14, and 21, 2011 and
January 30, 2012

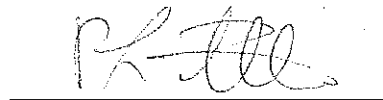
EPA INSPECTOR: Michael Beedle

PREPARED BY:


Michael Beedle

2/3/12
Date

ACCEPTED BY:


Paul Little, Chief, CS2

2-3-12
Date

Purpose of Inspection

This inspection was an evaluation of the Ortek Inc.'s compliance with hazardous waste and used oil regulations found at Illinois Administrative Code and the Code of Federal Regulations. The inspection was an EPA lead RCRA Compliance Evaluation Inspection (CEI).

Participants

Inspector:

Michael Beedle, Environmental Scientist, EPA

Representatives of Ortek:

Robert Kolar, Project Manager

Laurie Witter, Office Manager

Introduction

This inspection was conducted over four separate days on December 9, 14, and 21, 2011 and January 30, 2012. I first arrived at the site at approximately 10:10 AM on December 9th. I met with Ms. Witter and Mr. Kolar introduced myself; presented my inspector credentials and business card; and described the purpose and the process of the inspection. Mr. Kolar provided a description of the site and led the tour. Ms. Witter and Mr. Kolar provided records for review. Ortek has approximately seven employees. Ms. Witter and Mr. Kolar typically work to approximately 4:30 PM.

I provided a Small Business Resources information sheet to Mr. Kolar on December 21st. Mr. Kolar and Ms. Witter indicated that the owner of the facility is currently in prison and that they were doing the best they could in consideration of the circumstances. (See: <http://www.mysuburbanlife.com/lagrange/features/x1328933671/Man-barricaded-in-home-in-McCook-Lyons-area>)

Site Description

Ortek has notified as used oil refiner and marketer. The site takes in used oil, waste antifreeze, and non-hazardous wastewater. The site use to distill the used oil to manufacture gas oil. The site's stills have not operated since January 2010 or January 2009. Ortek took in crank case oil from Future Environmental and distilled it for them. The site formerly made lube oil many years ago.

*no more used
oil distillation*

Ortek takes in wastewater that has a small amount of oils on it. The site consolidates the wastewaters. When enough oil is on the top of the water, the oil removed. The site discharges the separated water to the sewer per a pretreatment permit. The site does not treat the water with chemicals. It only separates oil from the water. It operates as a Centralized Wastewater Treatment facility.

The site reclaims antifreeze. The site filters antifreeze and removes any oil from the top of it. The site then adds ingredients to antifreeze to meet specification. The site sends antifreeze samples offsite to make sure it meets the final product specifications.

*Reclaimed anti-freeze: need analysis
when coming to Ortek?*

The site packages and sells the antifreeze and reclaimed oil to Mazan Khatib of New World Sales who sold the material under the Super XXX product brand. Mr. Kolar said there is another company out there using the Ortek Super XXX label that is putting out bad material. He said there is an investigation of who is using their label.

Representative sampling? How many taken? *Method? Where?*
Mr. Kolar checks the used oil for chlorine and PCBs using an Oxford XRF. He said the sample is taken as the tanker is offloaded. He said the used oil is placed into a tank and is segregated until the analytical is completed. He said they have rejected loads with high chlorine.

Mr. Kolar said the material received is mostly water. He said the oil floats to the top of the water. He said the water is sent to the wastewater treatment plant. He said the water is not treated with any chemicals. The water is discharged to the sewer. Only gravity separation is used for the treatment. I asked about the solids settling out of the oil and wastewater. He said the solids are still in the tanks and have not been removed for a number of years.

How should they be managed?
Mr. Kolar said chemicals are added to oil to help the separation from water. He said caustic, alum and polymers are added. He said the oil is sold or returned to their customers. The site main customers were identified as: Future Environmental, North Branch Environmental, Turn-Key, Haz Chem, and Illinois Recovery Group.

Mr. Kolar said the solids/sludge from their oil/antifreeze/wastewater processing are in the tanks. He said there are solids generated in the filtration of antifreeze in socks. Mr. Kolar and Ms. Witter said the last time the solids were removed was 4 or 5 years ago by Best Environmental.

Site Tour

We toured the site observing the lab; used oil tanks; stills; the triple basin; oil and antifreeze packaging; and the wastewater treatment plant. I took photographs of the various waste operations and waste storage/accumulation areas during the inspection. See the photographs in Attachment A.

We started the tour in the lab. The site runs flash point on material they are sending offsite. Mr. Kolar said the site rejects gasoline. The lab has a GS/MS that is currently down. The site sends samples out for such analysis as necessary. The site use pH paper to determine the pH of a material. The site has centrifuge and will do DSW on a occasion. DSW is a centrifugal analysis to determine the amount of oil, water and solids in a sample of material. The site also does solvent extraction of some material in the lab. The site uses acetone, and toluene for the extractions. The acetone and toluene are placed into a lab oil bucket. The lab oil is returned to the oil tanks.

We observed tank 101. It was labeled used oil. It did not have secondary containment (photos 1-5). There were a tray and a 5 gallon bucket outside of tank 101 to catch oil drippings (photos 3-5). There was a small amount of oil in each. Neither were labeled or marked used oil.

We went to the boiler and observed tanks (200 series) for finished products and additives. The boiler and finished oil products operations had not been running for a couple of years.

I observed tanks 1, 2, and 3. The tanks were labeled used oil. These tanks were in secondary containment. Mr. Kolar said that water is taken off the oil and it is dehydrated in these tanks. I observed the triple basin where debris/dirt is separated off oil. I took pictures of the basin (photos 6, and 15-18). The basin is pumped to tank 101. Tanks 1-6 take water off oil and the water is sent to the wastewater treatment plant. There was oily debris on top of the basin's grates and several 5-gallon buckets (photos 15 and 17). The buckets were not labeled used oil. In the offloading area near tanks 1-10 and tanks 120-146 there were numerous 5-gallon buckets (photo 7) and a 55 gallon drums holding used oil. These containers were not labeled or marked used oil.

279.11
279.70 I observed a truck being loaded during the tour. Illinois Recovery Group (IRG) out of Franklin Park and Morris was picking up oil. The driver, Zach Petry, said the truck was going to the Morris facility to a storage tank. He said the material is sold to asphalt companies as fuel.

We walked on the south side of the 1-10 and 120-146 tanks. The tanks do not have secondary containment. The soil near these tanks appeared to be oil stained (photos 8 and 9). Tanks 1-10 are on a concrete pads but do not have secondary containment walls.

energy recovery
selling oil as fuel?
(certain specs
is Ortek selling
oil fuel, does
it meet 279.11?
If

I observed a monitoring well during the tour (photo 10). Mr. Kolar said that there were 8-10 monitoring wells onsite. I took pictures of the catch basins, lift station, and triple basin south of the 1-10 and 120-146 tanks (photos 11-26). The catch basins are used capture liquid run off from the processing areas (photos 11- 14, 16, 24 and 25).

The lift stations (photos 19 and 20) are used to send material to the wastewater treatment plant. I observed that oil was being released from the triple basin, catch basin and lift station area onto the adjacent soil (photos 11-14, and 16). I observed sludge/solids in the bed of a truck (photos 21, 24 and 26) in this area. The tarp over the sludge was torn and not covering the material. Mr. Kolar said the sludge was from loading and offloading at the triple basin.

There is an area south of these tanks where oil was formally loaded/off-loaded into rail cars (photos 22-23). The secondary containment under this area had oil in it. I observed an old tank that had a worn tarp and plywood on it (27-29). Mr. Kolar said the tank was approximately $\frac{3}{4}$ full of sludge. Photo 29 is under the plywood and tarp. Sludge, debris and liquid can be seen in the photo.

Tank 100 has flexible piping from it to the triple basin area (photo 30). Outside of tank 100, I observed oil sludge on the ground (photo 31). The tank was labeled used oil but did not have secondary containment (photo 32). The level indicator on tank 100 showed that the tank was approximately half full (photo 33).

I observed a tanker truck arriving at Ortek from Turn-Key. I talked to the driver, Brandon Miller. He showed me non-hazardous wastewater manifest he was carrying. The material on the manifest was rejected by Klean Water in Indiana and was rerouted to Ortek.

We went into a building called the grease shack (photos 34-41). Mr. Kolar indicated that the building had not been used for a number of years. There were numerous abandoned drums, containers, and six lead acid batteries in the building. Some of the material was hazardous material in 5-gallon cans (approximately 12 cans). This material included chlorobenzene, 2-propanol, pyranol (PCB) and a can marked poisonous (catechol) (photos 37-39). I discussed with Mr. Kolar the dangers of abandoned chemicals and that it is common for such material to start leaking. I also mentioned waste requirements associated with spent batteries.

I next observed the offloading pumps near the 500 series tanks (photos 42 and 43). There were two 5-gallon pails without lids and a 55-gallon drum in this area. The pails were not labeled or marked used oil and contained oil. One had a large filter in it. The 55 gallon drum was closed and labeled used oil. The containers were not in secondary containment.

I observed tank 400 (photos 44 and 45). It is 250,000 gallon tank that is used to store used oil from Future. This is the oil that would be refined into gas oil if that operation resumes. Tank 400 is labeled used oil and has secondary containment. It is mostly full.

We went to wastewater treatment plant. Near this area there was spill a couple years ago from a heavy rain event. Mr. Kolar indicated that Future helped clean up the spill and that oil eating microbes were placed in the area. I did not observe any residual oil staining in the area.

Mr. Kolar said the wastewater treatment consists of API oil water separator. He said there was no chemical additive used to treat the water. He said that only physical separation occurs. He said that the oil recovered from it is pumped to tank 323. He said the solids from the treatment are still in the tanks. He said the solids had not been removed for a couple of years.

I observed the thermal oxidizer, three stills, hydrotreating treatment units and associated tanks that are used for refining the used oils. These units were not operating.

Record Review

After the tour on December 9, I met with Ms. Witter and Mr. Kolar. We further discussed site operations. It was reported that Future uses tanks 7, 8 and 400 for oil storage. In tanks 7 and 8, Future drops and picks up used oil on a routine basis. Tank 400 used oil has been in storage for a couple years. Mr. Kolar said all waters go into the triple basin which in turns goes into tank 101. Tank 101's water is taken off and sent to the WWTP. Oil is moved to another tank where more water may be removed. If the oil is dry enough it is sold to a customer. Ortek will sell it to Illinois Recovery or Future. Ms. Witter said that Ortek does not get analytical results with water shipments.

Because of participants' schedules, we discussed performing the record review on another day. I described the documents I would like to review which included: a site diagram, used oil manifests, antifreeze shipments, analytical data on the material received and shipped, the analysis plan and the biennial report. The inspection ended at 2:00 PM on December 9, 2011. Mr. Kolar emailed me a site diagram after the first day of inspection was completed (Attachment B).

December 14

I returned to Ortek on December 14, 2011 at 1:30 PM to review documents. I met with Mr. Kolar and Ms. Witter. Mr. Kolar further described the antifreeze process to me. He said the antifreeze is coming in a similar manner as oily waste. It does not come into the wastewater system. He said the site processes the antifreeze to make new antifreeze. He said they separate the oil and glycol. The antifreeze is filtered, the pH is adjusted, and an additive package including surfactants and more glycol are added. He said Mazen Khatib (New World Sales) is the person that Ortek bottles up the material under the Super XXX brand. Ms. Witter said that Mr. Khatib is not part of Voyager Petroleum. Voyager Petroleum comes up when a web search of Super XXX is done. Mr. Kolar said the antifreeze sits for month for separation. He said the material is packaged approximately twice a month depending on demand. It is package into 1-gallon jugs.

I asked about the storage of Future's oil. Mr. Kolar said the Future's oil is not processed. I asked if any of the Future material was stored more than 35 days. He said in tank 400 it is. As of November 2010 there was approximately 230,000 gallons of used oil in tank 400 per scale records. Tank 400 is a 250,000 gallon tank. Future's contacts are Steve Lempa, owner; and Jim Tietz, Vice President; Future's phone number is 708-479-6890. The crank case oil was vacuum distilled to make gas oil. It was shipped offsite and further processed by another company to make gasoline.

Ortek brings in antifreeze and wastewater on manifests and used oil on bills of lading. I reviewed some of Future's incoming and outgoing shipping documents for 2011. I did not see used oil rebuttable presumption information for the shipments.

I reviewed shipping documents for a company named RS Used Oil Services. In this folder there were several incoming and outgoing shipping documents, invoices and communications. There were eight hazardous waste manifests that had the generator's name and mailing address as RS Used Oil Services, Inc., 25903 S. Ridgeland Avenue, Monee, Illinois 60449. The Generator's ID was ILR000167478. The generator's site address was Ortek's, 7601, W. 47th Street, McCook, IL 60525. Ziron Environmental Services was the transporter on the manifests. The designated receiving facility was Green Castle WDF Facility in Indiana. The U.S. DOT description was RQ, UN 1992, Waste Flammable Liquids, N.O.S., 3 (6.1), PGII (RQ-D001)(Petroleum Distillates, Tetrachloroethylene). The waste codes on the manifests were D001 (ignitable), D008 (lead), and D039 (tetrachloroethylene).

*Ziron shipping
haz waste
from Ortek's
premises*

*Clarify
w/
Mike* Ms. Witter provided copies of two manifests, one land disposal restriction notification, a spreadsheet with shipment information and an email communication related to RS hazardous waste shipments (Attachment C). The material was removed from tanks 146, 122, and 120 per the spreadsheet and email communications. An account statement showing shipments to Ortek from RS was provided to me. Ms. Witter said the six shipments highlighted from RS on the account statement were the material sent offsite on manifests. The received material highlighted was date ranged from 4/14/11 to 5/17/11. The hazardous waste manifests were shipped from 11/1/11 to 11/14/11. A total of 41,312 gallons were shipped offsite as hazardous waste. Ms.

pg. 10

*Ortek receives
waste in April '11
from RS
(billing statement)*

*Ortek does
material not up
to specs*

*Ortek makes
RS remove haz
waste in Nov. '11
(manifests)*

Witter said the material did not meet specs and was sent offsite. Ms. Witter provided documents related to RS shipment to Ortek on 4/14/11 (Attachment D).

The generator's ID on the manifests is not the same as Ortek's. Searching this ID comes up with the RS as the generator at Ortek's address in McCook. The notification says the generator is a Large Quantity Generator. See Ortek's notification information in Attachment E and RS' notification information in Attachment F.

Mr. Kolar provided a copy of the Ortek's Used Oil Management Waste Analysis Plan (Attachment G). Mr. Kolar said that manifests received are entered into spreadsheet approximately every other day. He said analytical data is recorded on a daily basis in log sheets. I reviewed the manifest of the wastewater that was rejected from Klean Water in Griffin Indiana that Turn-Key rerouted to Ortek. This was the shipment I observed during the site tour on December 9. There was nothing unusual marked on the manifest. The inspection on December 14 ended at approximately 4:15 PM. I arranged to continue the inspection on another day to be able complete the inspection checklist.

December 21, 2011

I arrived at approximately 2:00 PM. I met with Mr. Kolar and Ms. Witter to complete the used oil inspection checklist and to review the analytical records kept by Ortek. Mr. Kolar provided a copy of the Spill Prevention, Control and Counter Measures Plan (Attachment H); documents associated a July 24, 2010 spill and response (Attachment I); Ortek's Illinois Nonhazardous Special Waste Annual Report (Attachment J); and a copies of Certificate of Analysis for samples identified as glycol; oil 503; and WO 4, 5, 6, 101 (Attachment K). The glycol analysis had an arsenic results of 25.58 ppm. The WO 4, 5, 6, 101 sample had chromium levels at 179 ppm. *~ 179 mg/l*

Mr. Kolar indicated that he uses approximately 1-gallon of acetone every two months; and 1-gallon of toluene every six months for solvent extraction of oil in the lab. He said he runs chlorine analytical on everything they bring in except antifreeze product. The Oxford XRF was not running and was shipped offsite for repair. He said it worked for a few days then went down again. Mr. Kolar reported that the site is still receiving some waters. *w/out XRF*

Mr. Kolar thought the site was a centralized waste treater. Mr. Kolar said that since Jamie Snyder left that there was no compliance person onsite. They reported that Mr. Snyder and Mr. Aughenbaugh did most of the environmental compliance work for the site. Mr. Kolar said he was hired to run the vacuum distillation oil refining units and he was not hired for environmental compliance.

Ms. Witter said the site is not really taking in material at this time because of the Oxford being down. She said the site will bring in water and oil when the Oxford is fixed. Mr. Kolar and Ms. Witter said that three or four years ago, solids were taken out of the site. They thought Best Environmental is the contractor that came in and took out the solids.

It was reported that Future uses Tanks 7 and 8 for a few days to a week at most for storage of used oil and that tank 400 was storing Future's used oil for more than 35 days.

I reviewed some of the chlorine analytical data. I was somewhat confused by the system Ortek used. The Oxford printout was in percentages. Mr. Kolar wrote down the percentages as parts per million (ppm) in a log book on occasion. For example, I observed an Oxford printout of 0.149% and the recorded value of 0.149 ppm was recorded in the log. I mentioned to Mr. Kolar that it is my understanding that a reading of 0.149% is equivalent to 1,490 ppm. Mr. Kolar and I discussed this information.

$$1\% = 10000 \text{ ppm}$$

$$1\% = \text{pph}$$

I partially completed an used oil inspection checklist during the December 21 inspection (Attachment L). I was not able to fully evaluate information needed to complete the rebuttable presumption of mixing of used oil with hazardous waste. I mentioned that Ortek should have the generators rebut the presumption for each shipment and a profile with analytical data should be completed for each waste stream. The inspection on December 21 ended at 4:30 PM. I made arrangements to come back when the Oxford was working and to review the reporting of results.

January 30, 2012 Record Review

I arranged to observe the analytical device that Ortek uses for chlorine analysis. I arrived at the site at 10:30AM. I met with Mr. Kolar and Ms. Witter. We went to the lab and observed the Oxford Lab X3000 XRF. The device measures chlorine and sulfur content. Mr. Kolar demonstrated how the device is used on a sample received. Mr. Kolar keeps a log of chlorine results and pH by scale ticket number for each shipment received. The document is entitled "Daily Receiving Log Used Oils" (Daily Log). The Oxford analytical printout is stapled to the log. The printout reports percentage of chlorine. Mr. Kolar mostly recorded the percentage on the log up to December 21, 2011 when we discussed the difference between percentage and parts per million. The log is kept in the laboratory.

I observed on the Daily Logs that for the days October 5, and October 12, 2011 that specific shipments received were above 1000 ppm chlorine. On 10/5, generator ITD, load 8, scale ticket 96760, the chlorine results were recorded as 0.7650 (7650 ppm). Ms. Witter provided a copy of this manifest associated with this ticket number. On 10/12 there were three shipments above 1000 ppm chlorine on the log and printouts. Scale ticket numbers 96817 and 96819 had analysis results of 0.6626% and 0.3288% respectively. Ms. Witter provided copies of these manifests for these two ticket numbers. See the Daily Logs and Manifests in Attachment M.

I observed numerous manifests for incoming shipments for January 2012. Most of the shipments were of wastewater. I observed samples that Ortek takes of each shipment. The sample jar is marked with the last three digits of the scale ticket number. I observed some samples of tank 101. It appeared to be half water and half oil. There were samples of oil/water transferred from tank 101 to tanks 126, 127, and 132 in the laboratory too. Mr. Kolar said the water is first taken off tank 101 and the oil is transferred to other tanks for further drying. According to Mr. Kolar this makes the drying easier and less chemicals are used for drying (water separation and removal).

I asked Mr. Kolar and Ms. Witter about the RS hazardous waste shipments. Mr. Kolar said the chlorine was too high in the oil. Ms. Witter said she told RS to pick up the material because Ortek could not use it. Ms. Witter said she did not know why it was hazardous waste.

I asked Mr. Kolar and Ms. Witter about the RS notifying as a large quantity generator and getting a EPA ID number for the Ortek address. Both said they did not know that RS had done so. Ms. Witter said that RS did not have a lease on any of Ortek's tanks. date of application

Mr. Kolar provide a copy of a spreadsheet describing the current inventory: "Ortek Storage Tanks Inventory". Mr. Kolar stepped through the current inventory. I took notes on the document as we discussed it (Attachment N). Mr. Kolar did not know what was in 143 and 144 from memory. Ms. Witter called one of the tank operators to determine the contents. Tank 143 contents was distilled oil from when the distillation units were operating two years ago, other referred to as dried crank case oil. Tank 144 content was mostly dry oil with a little water in it from Haz Chem.

January 30, 2012 Tour

I briefly toured some of the concern areas identified during the December 9 tour. I took photos of some of the concerns. We went to the used oil container at the offloading area near tank 133. The container was a 275 gallon tote with the top cut off (photos 46-48). It was labeled used oil. Mr. Kolar said Ortek put down a secondary containment in the area. The asphalt was sloped and had side curbing (photo 48). I observed there was oil stained soil in between tanks 9 and 133 (photo 49).

I observed the truck that contained oil contaminated debris in its bed. Ortek had placed a new tarp and completely covered the waste after the 12/9/11 tour. Mr. Kolar said that Ortek started to place such solids in a drum and tote. The 55-gallon drums and the 1-cubic yard tote were not closed or labeled used oil. The containers were located at the railroad car offloading area (photos 51 and 52).

Orteck stores a number totes on a concrete pad. The pad does not have curbing or walls. The pad is in between tanks 100 and 101. The majority of the totes were labeled used oil. Mr. Kolar said the containers, for the most part, were empty. However there were at least three containers that were 1/4 to 1/3 full (photos 53-55).

We continued to the grease shack to view the 5-gallon cans. I told Mr. Kolar that the pyranol was tradename for PCBs. He was surprised and did not know why the site would have it. We viewed cans in the shack. The labeled cans had material in them. Some of the unlabeled cans did not. The can above the pyranol was rotated to be able read the label. It was butyl alcohol (photo 56). The can chlorobenzene can was light and may have been mostly empty.

One additional labeled can was discovered amongst the various excess equipment in the grease shack. The product description of the can could not be read but it did have a flammable liquid DOT label on it and material in it (photos 57-58).

We finished the tour by observing the offloading area near the 500 series tanks. The used oil container was closed, in good condition, and labeled but was not in secondary containment (photo 59).

Closing Conference

I summarized the secondary containment of tanks and containers; hazardous waste shipments; profile information; and rebuttable presumption issues and concerns identified during the inspection. The inspection concluded at approximately 12:50 PM on January 30, 2012.

Attachments

- A. Photographs
- B. Site Diagram
- C. RS Hazardous Waste Shipment Documents
- D. RS 4/14/11 Shipment Information
- E. Ortek's Notification
- F. RS Used Oil Services' Notification
- G. Used Oil Waste Analysis Plan
- H. SPCC Plan
- I. Release Information 7/24/10
- J. Special Waste Annual Report
- K. Analysis
- L. Checklist
- M. Daily Logs and Manifests
- N. Ortek Tanks Inventory



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:
LR-8J

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Brian Ziron
Ziron Environmental Services, Inc.
302 East 25th Street
Chicago Heights, Illinois 60411

Re: Request for Information
EPA ID No.: ILR000107581

Dear Mr. Ziron:

By this letter, the U.S. Environmental Protection Agency requests information under Section 3007 of the Resource Conservation and Recovery Act (RCRA), as amended, 42 U.S.C. § 6927. Section 3007 authorizes the Administrator of EPA to require you to submit certain information.

This request requires Ziron Environmental Services, Inc. (hereinafter "Ziron," "facility," or "you") to submit certain information relating to Ziron's hazardous waste shipments. We are requiring this information to determine the facility's compliance status with the provisions of RCRA as delineated in the authorized Illinois Administrative Code (IAC), and the United States Code of Federal Regulations (CFR); specifically, those regulations related to the transport of hazardous waste and the transport of used oil set forth in 35 IAC § 723 [40 CFR Part 263] and Subpart E of 35 IAC Part 739 [Subpart E of 40 CFR Part 279]. The enclosure specifies the information you must submit. You must submit this information within 30 calendar days of receiving this request to the U.S. Environmental Protection Agency, Attention: Brian Kennedy, 77 West Jackson Boulevard, LR-8J, Chicago, Illinois 60604.

You may, under 40 CFR Part 2, Subpart B, assert a business confidentiality claim covering all or part of the information in the manner described in 40 CFR § 2.203(b). We will not disclose the information covered by a business confidentiality claim only to the extent and by means of the procedures at 40 CFR Part 2, Subpart B. You must make any request for confidentiality when you submit the information since any information not so identified may be made available to the public without further notice.

Ziron must submit all requested information under an authorized signature certifying that the information is true and complete to the best of the signatory's knowledge and belief. Should the signatory find, at any time after submitting the requested information, that any portion of the

submitted information is false, misleading or incomplete, the signatory should notify us. Knowingly providing false information, in response to this request, may be actionable under 18 U.S.C. §§ 1001 and 1341. We may use the requested information in an administrative, civil or criminal action.

This request is not subject to the Paperwork Reduction Act, 44 U.S.C. § 3501 et seq., because it seeks collection of information from specific individuals or entities as part of an administrative action or investigation.

Failure to comply fully with this request for information may subject Ziron to an enforcement action under Section 3008 of RCRA, 42 U.S.C. § 6928.

You should direct questions about this request for information to Brian Kennedy, at (312) 353-4383.

Sincerely,

Michael Beedle, Acting Chief
Compliance Section 2
RCRA Branch

Enclosure

cc: Anna VanOrden, IEPA – Des Plaines District Office (anna.vanorden@illinois.gov)

REQUEST FOR INFORMATION

Instructions: You must respond separately to each of the questions or requests in this attachment. Precede each answer with the number of the Request for Information to which it corresponds. For each document produced in response to this Request for Information, indicate on the document, or in some other reasonable manner, the number of the question to which it responds.

REQUESTS:

1. Identify all persons consulted in preparing the answers to this Request for Information. Provide the full name and title for each person identified, business telephone number for each individual identified, and the number of years that each identified individual has worked for, at, or under the direction of Ziron.

November 2011 Hazardous Waste Shipments

2. Please provide all documentation related to shipments of hazardous waste Ziron conducted in November 2011 from Ortek, Inc. (7601 West 47th Street, McCook, IL 60525) to Greencastle Waste Disposal Facility (3301 South County Road 150 West, Greencastle, IN 46135). Include all manifests, any additional company-specific shipment forms, and all correspondence, including email and phone records between Ziron and the company that initially requested the shipments, and billing statements for each shipment. Who contacted Ziron to organize the November 2011 shipments, and which company did that person(s) represent? What company paid for the November 2011 shipments? Was Ziron aware of the origin or generator of the hazardous material? Did Ziron conduct any testing of the material before Ziron agreed to transport it?

Please submit any and all documents that Ziron received from previous handlers of the hazardous waste which recorded whether those handlers determined whether the total halogen content of the used oil was above or below 1,000 ppm, or rebutted the presumption that used oil above 1,000 ppm had been mixed with halogenated hazardous waste listed in Subpart D of 40 CFR Part 261.

3. Did Ziron conduct any additional hazardous waste shipments from the Ortek site (7601 West 47th Street, McCook, IL 60525) after November 2011? If yes, please provide all manifests, correspondence, and billing statements for such shipments.
4. Did Ziron provide any additional services to Ortek at, around or since the time of the November 2011 hazardous waste shipments, e.g., site clean-up, analytical testing of waste material, tank cleaning? If yes, provide all documentation related to such services including correspondence and billing statements.

Certification

6. Provide the following certification by a responsible corporate officer:

I certify under the penalty of law that I have examined and am familiar with the information submitted in responding to this information request for production of documents. Based on my review of all relevant documents and inquiring of those individuals immediately responsible for providing all relevant information and documents, I believe that the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

-End of Requests-



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5, LR-8J

77 WEST JACKSON BOULEVARD

CHICAGO, IL 60604-3590

FACSIMILE COVER SHEET

DATE: January 25, 2013

SUBJECT: Ortek Water Information

FROM: Michael Beedle, EPA

phone: 312.353.7922

fax: 312.408.2297

TO: Mr. Gregory Yarnik, Metropolitan Water Reclamation District

99 fax: **312-751-5960**

Mr. Yarni;

Would I be able to get the following information related to Ortek located at 7601 W 47th Street, McCook, IL:

1. Discharge Authoriztion – 25248-4,
2. The last two inspection reports for the facility, and
3. The last two compliance sampling reports.

Please contact me if you have any questions.

Thank you

Mike



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

SEP 03 2013

CERTIFIED MAIL 7009 1680 0000 7679 6101
RETURN RECEIPT REQUESTED

REPLY TO THE ATTENTION OF:

Mr. Lowell Aughenbaugh
President
Ortek, Inc.
7601 West 47th Street
McCook, Illinois 60525

Re: Notice of Intent to File Civil Administrative Complaint against
Ortek, Inc.
EPA ID No.: ILD000646786

Dear Mr. Aughenbaugh:

The U. S. Environmental Protection Agency (EPA) plans to file an administrative complaint for civil penalties against Ortek, Inc. ("Ortek" or "you"). We will allege that you violated the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §§ 6901 - 6992k, as amended, as described in the enclosed Notice of Violation previously issued to you on January 24, 2013. RCRA provides a cradle-to-grave framework to ensure proper management of hazardous wastes and used oil which, if handled in an unsafe manner, could present risks to humans and the environment. This letter also informs you that EPA deems Ortek to be a Significant Non-Complier under RCRA.

Based on information currently available to us, we plan to propose a penalty of \$512,437 in the complaint. This letter is not a demand to pay a penalty. We will not ask you to pay a penalty until we file the complaint or a final order. Before filing the complaint, we are giving you the opportunity to present any information that you believe we should consider. Relevant information might include evidence that you did not violate the law; evidence that you relied on compliance assistance from EPA or a state agency; evidence that we identified the wrong party; or financial data bearing on your ability to pay a penalty.

If you believe that you will be unable to pay a \$512,437 penalty because of financial reasons, please send us certified, complete financial statements including balance sheets, income statements and all notes to the financial statements, and your company's signed income tax returns with all schedules and amendments for the past three years. Also, please complete the enclosed Form 4506-T (print form from <http://www.irs.gov/pub/irs-pdf/f4506t.pdf>) authorizing the Internal Revenue Service to release transcripts of your tax returns for the past same three years.

Also, as part of a settlement, you may voluntarily propose to undertake an environmentally beneficial project related to the violation(s) in exchange for mitigation of the penalty. A

Supplemental Environmental Project (SEP) furthers EPA's goal of protecting and enhancing public health and the environment. See this EPA web link for information on SEPs:
<http://www.epa.gov/enforcement/sep.html>.

You may assert a claim of business confidentiality under 40 C.F.R. Part 2, Subpart B, for any portion of the information you submit to us. Information subject to a business confidentiality claim is available to the public only to the extent allowed by 40 C.F.R. Part 2, Subpart B. If you fail to assert a business confidentiality claim, EPA may make all submitted information available, without further notice, to any member of the public who requests it.

Within 10 calendar days after you receive this letter, please send any written response to:

Brian Kennedy
U.S. Environmental Protection Agency
Region 5 (LR-8J)
77 West Jackson Boulevard
Chicago, Illinois 60604

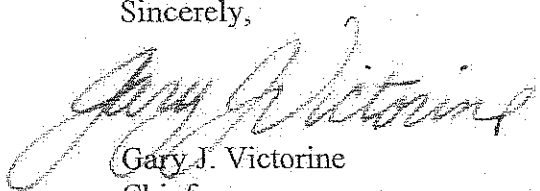
If you want to confer with us, you should contact Brian Kennedy, of the RCRA Branch, in writing within 10 calendar days after you receive this letter. Please be advised that this conference is not a settlement negotiation covered by Federal Rule of Evidence 408; we may use any information you submit in support of an administrative, civil or criminal action. After or during the conference (or after you have submitted a written reply if we do not have a conference), we may give you the opportunity to engage in settlement negotiations before we file the complaint. If pre-filing settlement negotiations commence and are successful, a settlement agreement can be filed under EPA regulations at 40 C.F.R. § 22.13(b).

If you do not respond to this letter, EPA may file a complaint without further notice against Ortek as authorized under Section 3008(a) of RCRA, 42 U.S.C. § 6928(a).

If you have any questions, please telephone Robert M. Peachey, Associate Regional Counsel, at (312) 353-4510.

Thank you for your prompt attention to this matter.

Sincerely,



Gary J. Victorine
Chief,
RCRA Branch

Enclosures

cc: Anna VanOrden, IEPA – Des Plaines District Office (anna.vanorden@illinois.gov)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

JAN 24 2013

REPLY TO THE ATTENTION OF:

CERTIFIED MAIL 7009 1680 0000 7669 2564
RETURN RECEIPT REQUESTED

Mr. Lowell Aughenbaugh
President
Ortek, Inc.
7601 West 47th Street
McCook, Illinois 60525

Re: Notice of Violation
Compliance Evaluation Inspection
EPA I.D. No.: ILD000646786

Dear Mr. Aughenbaugh:

On December 9, 14 and 21, 2011 and January 30, 2012, a representative of the U.S. Environmental Protection Agency (EPA) inspected Ortek, Inc. (hereinafter "Ortek" or "you") located in McCook, Illinois. The purpose of the inspection was to evaluate Ortek's compliance with certain requirements of the Resource Conservation and Recovery Act (RCRA), specifically, those regulations regarding the generation, treatment and storage of hazardous waste, including used oil. We have enclosed a copy of the inspection report and checklists for your reference.

Based on information provided by Ortek personnel, a review of records, a follow-up request for information dated September 12, 2012, and physical observations made by the inspector at the time of the investigation, EPA has determined that Ortek is in violation of hazardous waste management requirements of the Illinois Administrative Code (IAC) and the United States Code of Federal Regulations (CFR). Specifically, EPA finds that Ortek failed to meet the requirements of a used oil processor, and is in violation of the following regulations:

1. In order to operate as a used oil processor, owners or operators must have a contingency plan for the facility designed to minimize hazards to human health and the environment from fires, explosions, or any unplanned sudden or non-sudden release of used oil to air, soil or surface water. See 35 IAC § 739.152(b)(1)(A) [40 CFR § 279.52(b)(1)(i)]. However, if the owner or operator has already prepared a Spill Prevention, Control, and Countermeasures (SPCC) Plan, the owner or operator need only amend that plan to incorporate used oil management provisions that are sufficient to comply with the requirements of a 35 IAC § 739.152(b). See 35 IAC § 739.152(b)(2)(B) [40 CFR § 279.52(b)(2)(ii)].

At the time of inspection, Ortek presented a copy of their SPCC plan. However, the SPCC plan was not amended to comply with the provisions of a contingency plan contained in IAC § 739.152(b)(2) [40 CFR § 279.52(b)(2)], nor was there a separate contingency plan available. Ortek, therefore, failed to meet the general facility standards of a used oil processor and is in violation of the abovementioned requirement.

2. In order to operate as a used oil processor, containers used to store or process used oil must be equipped with a secondary containment system which has at a minimum, dikes, berms or retaining walls as well as a floor that must cover the entire area within the dike, berm or retaining wall. See 35 IAC § 739.154(c)(1)(A) [40 CFR § 279.54(c)(1)]. It is also required that the entire containment system, including walls and floor, must be sufficiently impervious to used oil to prevent any used oil released from the containment system from migrating out the system to the soil, groundwater or surface water. See 35 IAC § 739.154(c)(2) [40 CFR § 279.54(c)(2)].

At the time of inspection, two 5-gallon pails and one 55-gallon drum of used oil near the off-loading pump near the 500 series tanks were not in secondary containment. Additionally, numerous totes with used oil near Tanks 100 and 101 sat on a concrete pad without secondary containment. Ortek, therefore, failed to comply with used oil management standards and is in violation of the abovementioned requirements.

3. In order to operate as a used oil processor, existing aboveground tanks must have a secondary containment system which has at a minimum, dikes, berms, or retaining walls and a floor that must cover the entire area within the dike, berm, or retaining wall except areas where existing portions of the tank meet the ground. See 35 IAC § 739.154(d)(1)(A) [40 CFR § 279.54(d)(1)]. It is also required that the entire containment system, including walls and floor, must be sufficiently impervious to used oil to prevent any used oil released into the containment system from migrating out the system to the soil, groundwater, or surface water. See 35 IAC § 739.154(d)(2) [40 CFR § 279.54(d)(2)].

At the time of inspection, Tanks 1-10, 100, 101, and 120-146 were not in secondary containment sufficiently impervious to prevent used oil from reaching soil. Additionally, an open-top tank covered with a tarp and plywood near the train tracks along the southern border of the facility contained used oil and was not in secondary containment. Ortek, therefore, failed to comply with used oil management standards and is in violation of the abovementioned requirements.

4. In order to operate as a used oil processor, containers and aboveground tanks used to store used oil at processing facilities must be labeled or marked clearly with the words "Used Oil." See 35 IAC § 739.154(f)(1) [40 CFR § 279.54(f)(1)].

At the time of inspection, a bucket catching drippings from Tank 101 was not labeled "Used Oil." Numerous buckets and one 55-gallon drum near the triple basin were not labeled "Used Oil." Various 5-gallon gallon buckets and one 55-gallon drum near the off-

loading area by Tanks 1-10 and 120-146 were not labeled "Used Oil." Two 5-gallon pails and one 55-gallon drum near the 500-series tanks were not labeled "Used Oil."

Additionally, oily debris observed in a truck bed was transferred to a nearby tote and 55-gallon drum over the course of the inspection. However, the tote and 55-gallon drum were not labeled "Used Oil." Ortek, therefore, failed to comply with used oil management standards and is in violation of the abovementioned requirements.

5. To ensure that used oil is not a hazardous waste under the rebuttable presumption of 35 IAC § 739.110(b)(1)(B), the owner or operator of a used oil processing facility must determine whether the total halogen content of used oil managed at the facility is above or below 1,000 ppm. See 35 IAC § 739.153(a) [40 CFR § 279.53(a)]. The owner or operator must make this determination by testing the used oil, or applying knowledge of the halogen content of the used oil in light of the materials or processes used. See 35 IAC §§ 739.153(b)(1) and (2) [40 CFR §§ 279.53(b)(1) and (2)].

At the time of inspection, Ortek presented their "Waste Analysis Plan," which contains a "Material Profile Sheet" that must be completed for all incoming used oil streams. Part J of the "Material Profile Sheet" mentions the rebuttable presumption for used oil, but it does not request a total halogen determination for the used oil or request a basis for knowledge of the used oil's halogen content. Part J also does not provide a location where total halogens may be recorded, nor is there a location elsewhere on the sheet. Total Halogens are not mentioned elsewhere on the "Material Profile Sheet."

Additionally, Part C of the "Material Profile Sheet" requests general information of the process that generated the used oil, but does not request any information or documentation about the process or its materials used that could lead to an accurate determination of the used oil's halogen content, e.g., the chemical composition of the virgin oil, whether used oil from the same process had been previously analyzed and where to find such information, a certification from the generator that the total halogen content of the used oil is below 1,000 ppm, or if the used oil had been mixed with other waste streams on the generator's site.

Information requested on the "Material Profile Sheet" does not allow Ortek to properly apply knowledge of the halogen content of the used oil in light of the materials or processes used, nor is it adequate to rebut the presumption of used oil mixture with halogenated hazardous waste listed in Subpart D of 35 IAC § 721 [Subpart D of 40 CFR Part 261]. Ortek, therefore, is in violation of the abovementioned requirements.

6. In order to operate as a used oil processor, owners or operators must ensure that used oil managed at the facility is not a hazardous waste by determining whether the total halogen content is above or below 1,000 ppm. If the used oil contains greater than or equal to 1,000 ppm total halogens, it is presumed to be a hazardous waste because it has been mixed with halogenated hazardous waste. The owner or operator may rebut this

presumption by demonstrating that the used oil does not contain hazardous waste. See 35 IAC §§ 739.153(a) and (c) [40 CFR §§ 279.53(a) and (c)].

Test results performed by Ortek on several watery oil streams indicate concentrations of total halogens over 1,000 ppm. On October 5, 2011, a "Daily Received Log Used Oils" sheet indicates that a 3,500 gallon shipment from International Titanium Powder had a chlorine concentration of 7,650 ppm (Ticket # 96760). On October 12, 2011, another "Daily Received Log Used Oils" sheet indicated three shipments also had chlorine concentrations over 1,000 ppm:

- Ticket # 96817 - 2900 gallons from Switch Craft with 3,899 ppm chlorine
- Ticket # 96819 - 4800 gallons from Laser Technology with 3,288 ppm chlorine
- Ticket # 96821 - 850 gallons from HazChem with 1,935 ppm chlorine

All shipments above were placed in Tank 101. At the time of inspection, no information was available to rebut the presumption that the above materials were not mixed with halogenated hazardous wastes. In response to an information request on November 12, 2012, Ortek could provide EPA no further information on these shipments. Ortek could not demonstrate the used oil was not mixed with halogenated hazardous waste and is therefore in violation of the abovementioned requirement.

7. In order to operate as a used oil processor, owners or operators must develop and follow a written used oil analysis plan describing the procedures that will be used to comply with the analysis requirements of the rebuttable presumption for used oil and, if applicable, on-specification used oil fuel. See 35 IAC § 739.155(a) and (b) [40 CFR § 279.55(a) and (b)]. When sample analyses are used to make the determination of used oil as on-specification fuel, the analysis plan must describe the method by which representative samples will be obtained, the location of the sampling and its frequency, and the methods used to analyze used oil for the parameters specified in 35 IAC § 739.172 [40 CFR § 279.72]. See 35 IAC §§ 739.155(b)(2)(A)-(D) [40 CFR §§ 279.55(b)(2)(i)-(iv)].

On November 12, 2012, EPA received Ortek's most recent "Waste Analysis Plan." As outlined in Violation 5 above, the "Material Profile Sheet" in the "Waste Analysis Plan" is not adequate to rebut the presumption of used oil mixture with halogenated hazardous waste because the sheet does not request total halogen content or related knowledge. Additionally the section "Outgoing On-Spec Used Oil Analysis Plan" does not describe the method by which representative samples will be obtained, the frequency of sampling, or the analytical method and location by which used oil will be tested to meet the parameters of IAC § 739.172 [40 CFR § 279.72]. Descriptions in the "Waste Analysis Plan" are not suitable to comply with the analysis requirements above. Ortek, therefore, is in violation of this requirement.

8. In order to operate as a used oil processor, the facility must be maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden

release of used oil to air, soil, or surface water which could threaten human health or the environment. See 35 IAC § 739.152(a)(1) [40 CFR § 279.52(a)(1)].

At the time of inspection, oil-stained soils were observed near Tanks 120-146. Oil-stained soils were also observed near the triple-basin area and lift-station, and in between Tanks 9 and 133. Ortek, therefore, is in violation of the abovementioned requirement for the general facility standards of used oil processors.

9. No person may conduct any hazardous waste storage, hazardous waste treatment, or hazardous waste disposal without a RCRA permit. See IAC § 703.121(a)(1). Accordingly, owners or operators of hazardous waste management units, including tanks which store hazardous waste, must have permits during the active life of the unit. See IAC § 703.121(b) [40 CFR § 270.1(c)].

At the time of inspection, eight hazardous waste manifests indicated the off-site shipment of D001, D008, and D039 hazardous waste from Ortek Tanks 120, 122, and 146. The manifests were:

- 001528685 GBF on November 1, 2011
- 001528686 GBF on November 2, 2011
- 001528724 GBF on November 7, 2011
- 001528725 GBF on November 8, 2011
- 001528726 GBF on November 9, 2011
- 001528727 GBF on November 10, 2011
- 001528729 GBF on November 11, 2011
- 001528730 GBF on November 14, 2011

These manifests displayed the generator of the hazardous waste to be RS Used Oil Services, Inc. (RS) albeit with the site address of Ortek. When asked about the hazardous waste shipments during the inspection, Ortek personnel indicated the material originally came to Ortek in April and May of 2011 through RS, a used oil transporter which routinely brings used oil to Ortek tanks. Ortek personnel pointed out five incoming shipments in April and May 2011 on an RS Account Statement for Ortek dated 7/7/2011. These five shipments (April 1 and May 2, 6, 9, and 17, 2011) were identified by Ortek personnel as the material that was later shipped off Ortek's site on the hazardous waste manifests above.

In response to an information request on October 10, 2012, RS Used Oil Services provided EPA analytical tests performed by Precision Petroleum Labs, Inc. on September 9, 2011, for material in Ortek Tanks 120, 122, 132, 146 and 500. In addition to demonstrating that the material in Tanks 120, 122 and 146 were characteristic for D001, D008 and D039 hazardous wastes, the results also showed that material in Ortek Tank 132 was characteristic for D001, D007, D008 and D039 hazardous waste. Ortek, therefore was storing hazardous waste in Tanks 120, 122, 132, and 146 without a hazardous waste permit and is in violation of the abovementioned requirements

Additionally, and as outlined in Violation 6 above, Ortek failed to provide information to rebut the presumption of used oil mixture with halogenated hazardous waste for four incoming used oil shipments in October, 2011. The four used oil streams had total halogen concentrations greater than 1,000 ppm and were initially placed in Tank 101. Ortek, therefore, was also storing hazardous waste in Tank 101 without a hazardous waste permit and is in violation of the abovementioned requirements.

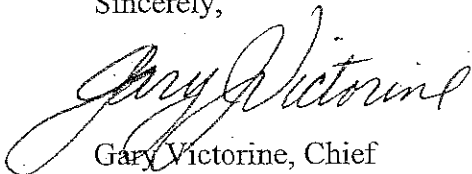
10. Owners or operators of facilities that use tank systems for storing or treating hazardous wastes must follow the regulations of Subpart J of IAC § 725 [Subpart J of 40 CFR § 265].

As outlined in Violation 9 above, Ortek stored hazardous wastes in Tanks 120, 122 and 146 until such wastes were shipped off-site in November, 2011. Ortek also stored hazardous waste in Tank 132 and Tank 101. Ortek, therefore, was storing hazardous waste in Tanks 101, 120, 122, 132, and 146 and was required to meet the hazardous waste storage tank requirements in Subpart J of IAC § 725. Ortek failed to do so. Ortek, therefore, is in violation of the abovementioned requirement.

According to Section 3008(a) of the Resource Conservation and Recovery Act (RCRA), EPA may issue an order assessing a civil penalty for any past or current violation requiring compliance immediately or within a specified time period. Although this letter is not such an order, we request that you submit a response in writing to this office no later than thirty (30) days after receipt of this letter documenting the actions, if any, which have been taken since the inspection to establish compliance with the above conditions and requirements.

You should submit your written response to Brian Kennedy, United States Environmental Protection Agency, Region 5, 77 West Jackson Boulevard, LR-8J, Chicago, Illinois 60604. If you have any questions regarding this letter, or if you wish to confer with us regarding the issues stated above or to present any relevant information you believe we should consider, please contact Mr. Kennedy, of my staff, at (312) 353-4383.

Sincerely,



Gary Victorine, Chief
RCRA Branch

Enclosure
Inspection Report and Checklists

cc: Anna VanOrden, IEPA – Des Plaines District Office (anna.vanorden@illinois.gov)

January 9, 2012

Mr. Greg Dunn
Site Remediation Program (SRP)
Illinois-EPA, Bureau of Land
1021 N. Grand Ave., East #33
Springfield, IL 62794-9276

FILE COPY**RECEIVED**

JAN 12 2012

IEPA/BOLIEPA - DIVISION OF RECORDS MANAGEMENT
RELEASABLE

JAN 19 2012

RE: Ortek, Inc., 7601 W. 47th Street, McCook, Illinois
Proposed Capping/Containment Plan for the "Used Oil Tank Farm Area"
Ortek, Site ID # 0311740002

Dear Mr. Dunn:

REVIEWER MED

We are submitting the following plan, that we believe is largely encouraged and endorsed by the IEPA Regional Office. This plan calls for capping/containment of Ortek's Used-Oil Tank Farm (the Area) as shown in Figure No.1. Ultimately, the Area had been scheduled for remediation, however, due to the Area being critical to daily operations and our on-going business, closure of the area for full remediation is not possible at this time. The proposed capping/containment of the area will: 1) help contain, and limit leaching of/from existing impacted soils, 2) help limit and/or manage any possible future release, and 3) respond to an existing non-compliance status for this area. This plan is being submitted to the IEPA-SRP group rather than the IEPA Permitting group due to our intent to cap, contain and manage an eventual remediation area.

DESCRIPTION OF AREA

The Used Oil Storage Tank Area (the Area) is located in the southern (i.e. southeastern) portion of the facility (see Figure No.1). For purposes of this plan, the Area contains twenty-two (22) used oil storage tanks, non-sequentially numbered 7 thru 10, and 120 thru 146. Historically, the Area was in use as early as 1939 by the original owner(s), however many of the current used oil storage tanks are dated 1976 (i.e. date manufacture). At that time (i.e. around 1976), the currently existing used oil storage tanks were placed on existing soils without any concrete or secondary containment. Used-oil impacted soils are known to exist and can be observed in the Area. Our Plan calls for the removal of 6 to 12 inches or more of the top impacted soils, and replacement of said soils with concrete and/or asphalt to form a more impervious barrier and better cap existing impacted soils below.

The proposed capping/containment area measures approximately 140-feet by 50-feet (at the widest section) or 25-feet (at the narrowest section). As such, the area consists of an "L" shaped area. Four of the 22 used oil storage tanks in this area (i.e. tanks 7, 8, 9, and 10) currently sit atop a concrete pad, while the remaining 18-tanks (i.e. Tank No.'s; 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 143, 144, 145, and 146) do not. The Used Storage Tanks listed are critical to Ortek's daily operations and on-going business of the facility.

PLAN DESCRIPTION


Impacted soils removed for this project are estimated to equal approximately 100-cubic yards and are to be profiled (composite sampled) for landfill disposal. Currently, the existing clay floor and southern clay-soil berm of the Used-oil storage tank farm area will be removed and replaced with a 6-inch thick or thicker concrete base, and southern concrete dike-wall approximately 2.5 feet or higher. Upon completion, the containment area is estimated to be able to hold in excess of 50,000 gallons with overflow being designed to occur into the "truck unload pad" (that will add an additional 20,000-plus-gallons of containment capacity), and the "API-Lift-Station areas (that will add an additional 10,000-gallons of containment capacity). The "API Lift Station area" is located immediately west of the "used oil tank farm storage area", while the "truck unloading pad" is located immediately north thereof. Liquids contained within any of these areas can then be pumped to Ortek's existing API (American Petroleum Institute) Oil-Water Separator, or numerous other storage tanks currently existing on-site, providing even additional containment/treatment capacity.

At some point in the future, the proposed area should be considered for complete remediation (e.g. removal and disposal of impacted soils). However, under this capping/containment plan, Ortek proposes to collect minimal soil samples of impacted soils that will be left-in-place (for the time being). Ortek proposes that four (4) soil samples be collected for analysis at an independent approved environmental laboratory for comparison to State of Illinois Soil Cleanup Standards (TACO). Results of laboratory analysis along with a final letter report (including photo-documentation) will be submitted to the IEPA upon completion of this project.

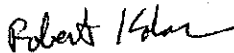
Following review, approval, and/or comments from the IEPA concerning this plan, Ortek proposes to complete this project within the next several months (following plan approval). We would hope to begin working on this project by July, 2012. We will give the IEPA a one-week notice prior to actual beginning of any field work.

Should you, or anyone at the Agency, have any questions or comments concerning this project, please do not hesitate to contact one of us at (708) 762-5117.

Sincerely,

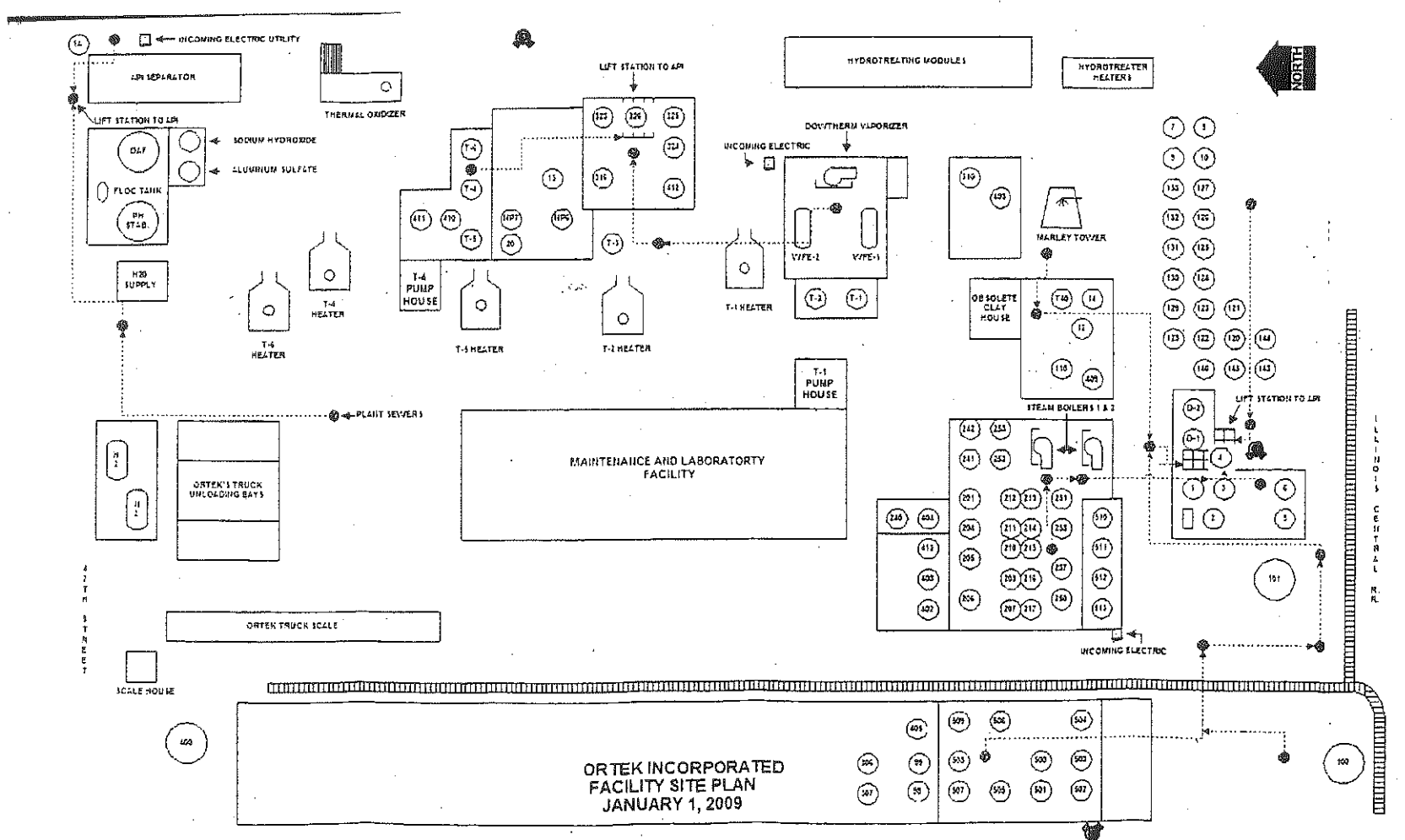


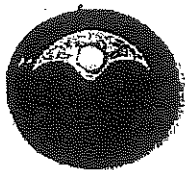
Laurie Witter
Ortek, Inc.



Robert Kolar
Ortek, Inc.

cc: Ms. Anna VanOrden, IEPA
enclosure: Figure No.1 (Ortek Site Plan)





ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 - (217) 782-2829
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, ILLINOIS 60601 - (312) 814-6026

PAT QUINN, GOVERNOR

JOHN J. KIM, INTERIM DIRECTOR

217/557-6939

CERTIFIED MAIL

7009 3410 0002 3752 4175

February 16, 2012

Laurie Witter/Robert Kolar
Ortek, Inc.
7601 West 47th Street
McCook, Illinois 60525

IEPA - DIVISION OF RECORDS MANAGEMENT
RELEASABLE

Re: # 0311740002/ Cook County
McCook/Ortek, Inc.
SRP/Technical Reports

MAR 12 2012

REVIEWER MED

Dear Ms. Witter and Mr. Kolar:

The Illinois Environmental Protection Agency (Illinois EPA) has completed a review of the *Proposed Capping/Containment Plan for the Used Oil Tank Farm Area Request* (January 12, 2012 /Log No.12-49673). The request is denied at this time.

Illinois EPA Comments:

1. The normal process for sites in the Site Remediation Program (SRP) is that the property owner/remedial applicant hires an environmental consulting company familiar with the SRP to do the necessary sampling and reporting required to investigate the levels of contaminants at the site, and then the process of evaluating the data and addressing any issues they find according to the options allowed in the 35 IAC Part 742 Tiered Approach to Corrective Action Objectives (TACO) regulations. It is not mandatory that a consultant is hired, but practically speaking most people are not able to provide or meet all the technical requirements without such help.
2. A brief review of the archived documents for this site indicates there were spill issues and clean up work done to correct the violation, and multiple inspections by the Illinois EPA Field Office to verify compliance. What was not in the records is any indication of a consulting company and/or any investigation of the contamination issues at the site, yet apparently this site has been entered into the SRP as a result of

ROCKFORD - 4302 N. MAIN ST., ROCKFORD, IL 61103 - (815) 987-7760
ELGIN - 595 SOUTH STATE, ELGIN, IL 60123 - (847) 608-3131
CHAMPAIGN - 2125 S. FIRST ST., CHAMPAIGN, IL 61820 - (217) 278-5800

DES PLAINES - 9511 HARRISON ST., DES PLAINES, IL 60016 - (847) 294-4000
PEORIA - 5407 N. UNIVERSITY, ARBOR HALL #113, PEORIA, IL 61614 - (309) 693-5463
MARION - 2309 W. MAIN ST., SUITE 116, MARION, IL 62959 - (618) 993-7200
COLLINSVILLE - 2009 MALL STREET, COLLINSVILLE, IL 62234 - (618) 346-5120

PRINTED ON RECYCLED PAPER

the spills (consent order or violation notice).

The Illinois EPA does not sanction covering over a potentially contaminated area without first delineating and evaluating the contamination levels. The end result may very well be a concrete cap, but you can't do that without knowing first what the situation is.

3. As per my phone conversation with Ms. Witter several weeks ago, we need to have an on-site meeting to discuss what is to be done at this site, and why. Are you planning to remediate and cap sections of this site as you go? If so, you will need an environmental consultant to collect appropriate samples and document the clean up and capping until the site is finished with that process.

Please provide the Illinois EPA with one original and one copy of any future information submitted regarding the above referenced site. If you have any questions regarding the Ortek, Inc. site, please feel free to contact me at the above telephone number or address. Let me know when you wish to meet on-site to discuss the project.

Sincerely,



Barbara Landers
Voluntary Site Remediation Unit B
Remedial Project Management Section
Division of Remediation Management
Bureau of Land

cc: BOL File

Anna VanOrden - BOL/FOS/DesPlaines

ORTEK INC.

**USED OIL MANAGEMENT
WASTE ANALYSIS PLAN**

ORTEK INC. WASTE ANALYSIS PLAN

The intent of this plan is to fully comply with both 40 CFR 279.55 as well as section 739.155 of the Illinois Environmental Protection Act. Under these acts our facility Ortek Inc. located at 7601 West 47th street in McCook, Illinois meets the definition of a used oil processor and as such must have a written waste analysis plan.

To comply with section 739.153 Ortek Inc. shall use both generator knowledge as well as sample analysis.

Incoming Waste Stream Analysis Plan

1. All waste streams at least annually or when their waste stream changes shall submit a copy of our waste profile sheet certifying that their waste stream is non-hazardous and meets the requirements of section 739.153 (See appendix A for waste profile sheet) 739.155(a)(1)
2. Upon entering the facility each truck and/or compartment of the truck shall be sampled using the Containerized liquid wastes method of sampling: COLIWASA described in Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods, SW-846, incorporated by reference in 35 Ill. Adm. Code 720.111. 739.155(a)(2)(A)
3. All samples from each truck or compartment of the truck shall be analyzed prior to unloading and will be done so on-site. 739.155(a)(2)(B)
4. Ortek Inc. shall use SW-846 test method 9075 as approved by the US EPA for determining chlorine and other halogens in used oil to comply with section 739.153 (See appendix B for methodology) 739.155(a)(2)(C)
5. Ortek Inc. will use a combination of generator knowledge as well as sampling analysis to determine the content of halogens in the used oil we accept for reprocessing. 739.155(a)(3)

Outgoing On-Spec Used Oil Analysis Plan

Any used oil received and processed and the intended use is for energy recovery shall meet the following standards. (739.172 / 739.111)

| | |
|----------------|-----------------------------|
| Arsenic | 5 ppm max. |
| Cadmium | 2 ppm max. |
| Chromium | 10 ppm max. |
| Lead | 100 ppm max. |
| Flash Point | 100 °F min. |
| Total Halogens | 4,000 ppm max. ² |

Footnote: ² Used oil containing more than 1,000 ppm total halogens is presumed to be a hazardous waste under the rebuttable presumption provided under section 739.110(b)(1)

APPENDIX A

A. Generator/Facility/Billing Information:

Company/Generator Name: _____
 Address: _____
 City / State / Zip: _____
 Phone No. _____ Fax: _____
 Person(s) we may Contact/Attn: _____

B. Material and/or Waste Description:

Common Name of Waste/Material: _____
 General Description of Waste/Material: _____
 Process Generating Waste/Material: _____
 Generator Knowledge of Waste/Material: *Please attach any documentation, analyses, other information, description, MSDSs, virgin composition, recent or historic lab analyses, (e.g., metals, PCBs, TCLP, Halogens/ Chlorides, VOCs, etcetera), process description, generator knowledge of material (and basis), has material/ waste process changed or likely to change in future, is material a listed waste, has it ever failed TCLP, is it or can it be considered Hazardous, or has it been mixed with Hazardous Waste?*

C. Additional Material/Waste Description; (what is the material?) (check all that apply):

- | | | |
|---|---|---|
| <input type="checkbox"/> Used Oil | <input type="checkbox"/> non-hazardous waste | <input type="checkbox"/> flash below 140° F / ignitable |
| <input type="checkbox"/> Oily Waste Water | <input type="checkbox"/> hazardous/listed waste | <input type="checkbox"/> Halogens > 1000 ppm |
| <input type="checkbox"/> Fuel/Oil Spill Clean-up | <input type="checkbox"/> Toxic | <input type="checkbox"/> Mixed w/ Hazardous Waste |
| <input type="checkbox"/> TSCA or contain PCBs | <input type="checkbox"/> Reactive / Corrosive | <input type="checkbox"/> Explosive / Radioactive |
| <input type="checkbox"/> other (please describe): _____ | | |

D. Physical &/or other Properties of Material/Waste:

| | | |
|---------------------------|----------------------------|------------------|
| Liquid/Solid State: _____ | Odor ? _____ | pH _____ |
| _____ % free liquid | _____ | color _____ |
| _____ % solids (settled) | (e.g., none, mild, strong) | Flash Pt _____ |
| _____ % suspended solids | | sp gravity _____ |

any soaps / detergents / phosphates in material/waste/process ? _____

E. Anticipated Material/Waste Volume:

| | |
|---------------------------------------|---|
| Anticipated Volume: _____ | (please report in gallons) |
| Proposed transportation method: _____ | (e.g. drum, tanker truck, railcar tanker) |
| Estimated Shipment Frequency: _____ | (e.g., one time, weekly, monthly, annually) |

F. Proposed Receiving Facility TSD (Treatment, Storage, Disposal), Re-refining / Recycling,

Reuse, RCRA (Resource Conservation and Recovery):

By filling out this form you the generator are proposing to recycle, treat, store, or dispose material/waste at the Ortek facility. Ortek, Inc., is a Used Oil Re-refinery located just outside of Chicago, Illinois. Should you have any questions or comments concerning this form, our facility, our process, your material, or other, please do not hesitate to contact us at (phone - 708-762-5117), or (fax - 708-762-5118). Thank you.

please note that this form (profile) continues on the following page (as this is page 1 of 2)

ORTEK'S MATERIAL PROFILE SHEET (page 2/2)

G. Constituents: Please answer the following and attach all available data including Lab Analysis, MSDS's, Generator Knowledge, Process Description, Virgin Oil Composition, etc.

The following values are based on ☐ knowledge ☐ testing ☐ nothing in this section is present

INORGANIC

| RCRA Regulated Metals | Regulatory Level (mg/l) | Conc. (mg/l) | Other | Conc. (mg/l) | Pesticides/Herbicides | Regulatory Level (mg/l) | Conc. (mg/l) |
|-----------------------|-------------------------|--------------|--------------------|--------------|------------------------|-------------------------|--------------|
| D004 ARSENIC | 5.0 / 5.0 | _____ | Ammonia | _____ | D012 Endrin | 0.02 | _____ |
| D005 Barium | 100.0 | _____ | Phosphorus | _____ | D013 Lindane | 0.4 | _____ |
| D006 CADMIUM | 1.0 / 2.0 | _____ | Formaldehyde | _____ | D014 Methoxychlor | 10.0 | _____ |
| D007 CHROMIUM | 5.0 / 10.0 | _____ | FLASH POINT | _____ | D015 Toxaphene | 0.5 | _____ |
| D008 LEAD | 5.0 / 100.0 | _____ | Total Solids | _____ | D016 2,4-D | 10.0 | _____ |
| D009 Mercury | 0.2 | _____ | PCBs | _____ | D017 2,4,5-TP (Silvex) | 1.0 | _____ |
| D010 Selenium | 1.0 | _____ | HALOGENS | _____ | D020 Chlordane | 0.03 | _____ |
| D011 Silver | 5.0 | _____ | Dioxins | _____ | D031 Heptachlor | 0.008 | _____ |
| | | | COD /BOD | _____ | (and its expoxide) | | |

OTHER METALS: Conc. (mg/l)

| | | |
|--------------|------------------|----------------|
| Copper _____ | Cobalt _____ | Titanium _____ |
| Nickel _____ | Tin _____ | Vanadium _____ |
| Zinc _____ | Molybdenum _____ | |

ORGANIC

| Volatile Compounds | Regulatory Level (mg/l) | Conc. (mg/l) | Semi-Volatile Compounds | Regulatory Level (mg/l) | Conc. (mg/l) | Other Hazards |
|---------------------------|-------------------------|--------------|----------------------------|-------------------------|--------------|--|
| D018 Benzene | 0.5 | _____ | D023 o-Cresol | 200.0 | _____ | <input type="checkbox"/> Water Reactive |
| D019 Carbon Tetrachloride | 0.5 | _____ | D024 m-Cresol | 200.0 | _____ | <input type="checkbox"/> OSHA Regulated |
| D021 Chlorobenzene | 100.0 | _____ | D025 p-Cresol | 200.0 | _____ | Carcinogens |
| D022 Chloroform | 6.0 | _____ | D026 Cresol (Total) | 200.0 | _____ | <input type="checkbox"/> Oxidizer |
| D028 1,2-Dichloroethene | 0.5 | _____ | D027 1,4-Dichlorobenzene | 7.5 | _____ | <input type="checkbox"/> Reducer |
| D029 1,1-Dichloroethylene | 0.7 | _____ | D030 2,4-Dinitrotoluene | 0.13 | _____ | <input type="checkbox"/> Infectious |
| D035 Methyl Ethyl Ketone | 200.0 | _____ | D032 Hexchlorobenzene | 0.13 | _____ | <input type="checkbox"/> Thermally Sensitive |
| D039 Tetrachloroethylene | 0.7 | _____ | D033 Hexachlorobutadiene | 0.5 | _____ | <input type="checkbox"/> Corrosive |
| D040 Trichloroethylene | 0.5 | _____ | D034 Hexachloroethane | 3.0 | _____ | <input type="checkbox"/> Other _____ |
| D043 Vinyl Chloride | 0.2 | _____ | D036 Nitrobenzene | 2.0 | _____ | |
| | | | D037 Pentachlorophenol | 100.0 | _____ | |
| | | | D038 Pyridine | 5.0 | _____ | |
| | | | D041 2,4,5-Trichlorophenol | 400.0 | _____ | |
| | | | D042 2,4,6-Trichlorophenol | 2.0 | _____ | |

H. Regulatory Status

RCRA Hazardous Waste (per 40CFR261)? ☐ Yes ☐ No State Hazardous Waste? ☐ Yes ☐ No
 USDOT Hazardous Material? ☐ Yes ☐ No **USED OIL (per 40CFR279)?** ☐ Yes ☐ No
 If yes to any, describe _____

I. Sample Status

Representative sample has been supplied? ☐ Yes ☐ No Sampled by: _____ Date Sampled: _____

J. Section IAC 739.110(b). Please indicate the total halogen content of this material _____

b) The rebuttable presumption for used oil of Section 739.110(b)(1)(B) applies to used oil managed by generators. Under the rebuttable presumption for used oil of Section 739.110(b)(1)(B), used oil containing greater than 1,000 ppm total halogens is presumed to be a hazardous waste and thus must be managed as hazardous waste and not as used oil unless the presumption is rebutted. However, the rebuttable presumption does not apply to certain metalworking oils and fluids and certain used oils removed from refrigeration units.

K. Generators Certification

I hereby certify that all information submitted herein and attached are correct to the best of my knowledge. I also certify that any samples are representative of the actual waste. If Ortek, Inc. discovers a discrepancy during the approval process, generator grants Ortek, Inc. the authority to amend the profile as Ortek, Inc. deems necessary to reflect the discrepancy. I also certify on behalf of the generator that the material (used oil) being submitted to Ortek for processing (recycling, etc.), is non-hazardous, less than 1000-ppm total Halogens (or with rebuttable analytical showing non-hazardous upto 4000-ppm halogens) and has not been mixed with hazardous waste by the generator.

Generator's Signature _____

Name (print) _____

Date _____

APPENDIX B

RCRA SW-846 METHODS FOR DETERMINING CHLORINE AND OTHER HALOGENS IN USED OIL

| Method | Title | Description of Procedure | Analytes Detected | Sensitivity (ppm) | Notes |
|--------|--|---|---|--|---|
| 8021B | Halogenated Volatile Organics by GC/HECD: Capillary Column Technique | Purge-and-trap (or dilute and shoot for oils) gas chromatography (GC) procedure using a Hall Electrolytic Conductivity Detector (HECD). | Applicable to individual volatile organic compounds in oil by dilute and shoot sample introduction. | EQLs of 0.040 to 0.625 mg/L in non-water miscible waste. Very low detection limit. | Method does not provide a total chloride number. The HECD is a relatively low-cost GC detector when compared to the MS. |
| 8260B | Volatile Organic Compounds by GC/MS: Capillary Column Technique | Purge-and-trap (or dilute and shoot for oils) gas chromatography (GC) procedure using a mass spectrometer (MS) detector. | Applicable to individual volatile organic compounds in oil by dilute and shoot sample introduction. | EQLs of about 2.5 mg/L in non-water miscible waste. Very low detection limit. | Method does not provide a total chloride number. The MS detector is an expensive, complex detector. |
| 9020B | Total Organic Halides (TOX) | A sample of water is passed through a column of activated carbon, the column is washed to remove inorganic halides, the remaining halides are combusted, and detected with a microcoulometric detector. | Applicable to all organic halides except fluorine in drinking water or ground waters that do not contain an amount of inorganic halides in excess of 20,000 times. | MDL of 0.005 mg/L for drinking water and ground waters. | Generates a single total halide number. Method is not applicable to oil matrices. |
| 5050 | Bomb Combustion Method for Solid Waste | A sample of oil is oxidized by combustion for 30-40 minutes in a bomb containing oxygen under pressure. The resulting combustate is analyzed by Methods 9056, 9252A, or 9253. | This procedure does not detect halides or halogenated compounds. Rather, this procedure prepares oil samples for analysis by other determinative methods. | Not applicable. This is not a determinative procedure. | Applicable to solid waste, oils, fuels, and related materials. |

RCRA SW-846 METHODS FOR DETERMINING CHLORINE AND OTHER HALOGENS IN USED OIL

| Method | Title | Description of Procedure | Analytes Detected | Sensitivity (ppm) | Notes |
|--------|---|--|---|---|---|
| 9056 | Anion Chromatography Method | For oils, 2-3 mL of combustate from Method 5050 is injected into an ion chromatograph and is pumped through 3 different ion exchange columns with halogens detected by a conductivity detector. | This procedure can sequentially determine chloride, fluoride, bromide, nitrate, nitrite, phosphate, and sulfate in combustate. | Minimum DL of 0.05 mg/L for F ⁻ and 0.1 mg/L for Br ⁻ , Cl ⁻ , and the other ions. Very low detection limit. | The only method that can be used to determine the conc. of each halide group (F ⁻ , Cl ⁻ , or Br ⁻). |
| 9253 | Chloride (Titrimetric, Silver Nitrate) | For oils, combustate from Method 5050 is adjusted to pH 8.3 and is titrated with silver nitrate solution in the presence of potassium chromate indicator. | This method can determine chloride from bomb combustate. Bromide, iodide, and sulfide are titrated along with the chloride. | This method is intended for oxygen bomb combustates and waters where the chloride content is 5 mg/L or more. | Bromide, iodide, and sulfide are also titrated. Ortho- and polyphosphate can interfere at concentrations above 250 and 25 mg/L, respectively. |
| 9075 | Test Method for Total Chlorine in New and Used Petroleum Products by XRF Spectrometry | A well mixed sample is loaded into an X-ray fluorescence (XRF) spectrometer. The intensities of the chlorine K alpha and sulfur K alpha lines are measured using a calibrated system. The sulfur intensity is used to correct for absorption by sulfur. Free water is a major interferant and should be removed before analysis. | This method can determine the total chlorine in new and used oils, fuels, and related materials. Possible interferants include metals, water, and sediments in the oil. Spike recovery measurements on used crankcase oil showed that diluting samples 5 to 1 allowed accurate measurement on 80% of the samples. | The applicable range of this method is from 200 mg/kg to percent levels of chlorine in oil matrices. | This method does determine total chloride concentration. One sample from each group of closely related samples should be spiked to confirm that matrix effects are not significant. |

RCRA SW-846 METHODS FOR DETERMINING CHLORINE AND OTHER HALOGENS IN USED OIL

| Method | Title | Description of Procedure | Analytes Detected | Sensitivity (ppm) | Notes |
|--------|---|---|---|--|--|
| 9076 | Test Method for Total Chlorine in New and Used Petroleum Products by Oxidative Combustion and Microcoulometry | A sample is placed in a quartz boat at the inlet of a high-temperature quartz combustion tube. An inert carrier gas sweeps across the inlet while oxygen flows to the center of the combustion tube. The boat and sample are passed through a temperature zone of about 300° C to volatilize the light ends. The sample is then advanced to the center of the combustion tube, which is at 1000° C, where the chlorine is converted to chloride and oxychlorides, which then flow into an attached titration cell where they quantitatively react with silver ions. The total current required to coulometrically replace the silver ions is a measure of the chlorine present in the sample. | This method can determine total chlorine in new and used oils, fuels, and related materials. Bromine and iodine will also give a positive response. However, because oxyhalides of bromine and iodine do not react in the titration cell, only about a 50% microequivalent response is detected from them. | The applicable range of this method is from 10 to 10,000 mg/kg of chlorine in oil matrices. | This method does determine total chloride concentration along with some of the bromide and iodide concentration present. |
| 9077 | Test Method for Total Chlorine in New and Used Petroleum Products (3 Different Field Test Kit Methods) | Method A: The CHLOR-D-TECT 1000 by Dexsil Corporation, involves dispersing a sample of oil (about 0.4 g by volume) in a solvent and reacting with a mixture of metallic sodium catalyzed with naphthalene and diglyme at ambient temperature. All halides in the mixture are extracted into an aqueous buffered solution and titrated with mercuric nitrate using a diphenyl-carbazone indicator to a blue-violet endpoint. | This method can determine whether or not a sample contains greater than or less than 1000 ppm of total chloride in new and used oils, fuels and related materials. Fluoride, bromide, and iodide are also titrated and reported as chloride in the procedure. | This method is semi-quantitative. Results are reported as being above or below 1000 mg/kg of chlorine (along with bromide and iodide) in oil matrices. | This method can determine total halogens as chloride. Each sample should be tested twice. If the results do not agree then a third test must be performed. |

RCRA SW-846 METHODS FOR DETERMINING CHLORINE AND OTHER HALOGENS IN USED OIL

| Method | Title | Description of Procedure | Analytes Detected | Sensitivity (ppm) | Notes |
|-----------------|-------|--|--|---|---|
| 9077 (cont.) | | Method B: The Quanti-Chlor Kit from Chemetrics Inc., involves a reverse titration of a fixed volume of mercuric nitrate with the extracted sample to an endpoint that is denoted by a change from blue to yellow in the titration vessel. | This method can determine total chlorine in new and used oils, fuels, and related materials. Fluoride, bromide, and iodide are also titrated and reported as chloride in the procedure. | The applicable range of this method is 750 to 7000 mg/kg chlorine in oil matrices. | This method can determine total halogens as chloride. Each sample should be tested twice. If the results do not agree within 10% RPD a third test should be run. |
| | | Method C: The CHLOR-D-TECT Q4000 from Dexsil Corporation involves a titration of the extracted sample with mercuric nitrate by means of a 1- mL microburette to an endpoint that is denoted by a change from pale yellow to red violet. The concentration of chlorine in the original oil is then read from a scale on the microburette. | This method can determine total chlorine in new and used oils, fuels, and related materials. Fluoride, bromide, and iodide are also titrated and reported as chloride in the procedure. | The applicable range of this method is 300 to 4000 mg/kg of chlorine in oil matrices. | This method can determine total halogens as chloride. Each sample should be tested twice. If the results do not agree within 10% RPD, a third test should be run. |

METHOD 9075

TEST METHOD FOR TOTAL CHLORINE IN NEW AND USED PETROLEUM PRODUCTS BY X-RAY FLUORESCENCE SPECTROMETRY (XRF)

1.0 SCOPE AND APPLICATION

1.1 This test method covers the determination of total chlorine in new and used oils, fuels, and related materials, including crankcase, hydraulic, diesel, lubricating and fuel oils, and kerosene. The chlorine content of petroleum products is often required prior to their use as a fuel.

1.2 The applicable range of this method is from 200 µg/g to percent levels.

1.3 Method 9075 is restricted to use by, or under the supervision of, analysts experienced in the operation of an X-ray fluorescence spectrometer and in the interpretation of the results.

2.0 SUMMARY OF METHOD

2.1 A well-mixed sample, contained in a disposable plastic sample cup, is loaded into an X-ray fluorescence (XRF) spectrometer. The intensities of the chlorine K α and sulfur K α lines are measured, as are the intensities of appropriate background lines. After background correction, the net intensities are used with a calibration equation to determine the chlorine content. The sulfur intensity is used to correct for absorption by sulfur.

3.0 INTERFERENCES

3.1 Possible interferences include metals, water, and sediment in the oil. Results of spike recovery measurements and measurements on diluted samples can be used to check for interferences.

Each sample, or one sample from a group of closely related samples, should be spiked to confirm that matrix effects are not significant. Dilution of samples that may contain water or sediment can produce incorrect results, so dilution should be undertaken with caution and checked by spiking. Sulfur interferes with the chlorine determination, but a correction is made.

Spike recovery measurements of used crankcase oil showed that diluting samples five to one allowed accurate measurements on approximately 80% of the samples. The other 20% of the samples were not accurately analyzed by XRF.

3.2 Water in samples absorbs X-rays emitted by chlorine. For this interference, use of as short an X-ray counting time as possible is beneficial. This appears to be related to stratification of samples into aqueous and nonaqueous layers while in the analyzer.

Although a correction for water may be possible, none is currently available. In general, the presence of any free water as a separate phase or a water content greater than 25% will reduce the chlorine signal by 50 to 90%. See Sec. 6.4.

4.0 APPARATUS AND MATERIALS

4.1 XRF spectrometer, either energy dispersive or wavelength dispersive. The instrument must be able to accurately resolve and measure the intensity of the chlorine and sulfur lines with acceptable precision.

4.2 Disposable sample cups with suitable plastic film such as Mylar[®].

5.0 REAGENTS

5.1 Purity of reagents. Reagent-grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents shall conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available. Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

5.2 Mineral oil, mineral spirits or paraffin oil (sulfur- and chlorine-free), for preparing standards and dilutions.

5.3 1-Chlorodecane (Aldrich Chemical Co.), 20.1% chlorine, or similar chlorine compound.

5.4 Di-n-butyl sulfide (Aldrich Chemical Co.), 21.9% sulfur by weight.

5.5 Quality control standards such as the standard reference materials NBS 1620, 1621, 1622, 1623, and 1624 for sulfur in oil standards; and NBS 1818 for chlorine in oil standards.

6.0 SAMPLE COLLECTION, PRESERVATION, AND HANDLING

6.1 All samples must be collected using a sampling plan that addresses the considerations discussed in Chapter Nine.

6.2 The collected sample should be kept headspace free prior to preparation and analysis to minimize volatilization losses of organic halogens. Because waste oils may contain toxic and/or carcinogenic substances, appropriate field and laboratory safety procedures should be followed.

6.3 Laboratory sampling of the sample should be performed on a well-mixed sample of oil. The mixing should be kept to a minimum and carried out as nearly headspace free as possible to minimize volatilization losses of organic halogens.

6.4 Free water, as a separate phase, should be removed and cannot be analyzed by this method.

7.0 PROCEDURE

7.1 Calibration and standardization.

7.1.1 Prepare primary calibration standards by diluting the chlorodecane and n-butyl sulfide with mineral spirits or similar material.

7.1.2 Prepare working calibration standards that contain sulfur, chlorine, or both according to the following table:

Cl: 500, 1,000, 2,000, 4,000, and 6,000 µg/g
S: 0.5, 1.0, and 1.5% sulfur

- | | |
|--------------------------|--------------------------|
| 1. 0.5% S, 1,000 µg/g Cl | 5. 1.0% S, 6,000 µg/g Cl |
| 2. 0.5% S, 4,000 µg/g Cl | 6. 1.5% S, 1,000 µg/g Cl |
| 3. 1.0% S, 500 µg/g Cl | 7. 1.5% S, 4,000 µg/g Cl |
| 4. 1.0% S, 2,000 µg/g Cl | 8. 1.5% S, 6,000 µg/g Cl |

Once the correction factor for sulfur interference with chlorine is determined, fewer standards may be required.

7.1.3 Measure the intensity of the chlorine K α line and the sulfur K α line as well as the intensity of a suitably chosen background. Based on counting statistics, the relative standard deviation of each peak measurement should be 1% or less.

7.1.4 Determine the net chlorine and sulfur intensities by correcting each peak for background. Do this for all of the calibration standards as well as for a paraffin blank.

7.1.5 Obtain a linear calibration curve for sulfur by performing a least squares fit of the net sulfur intensity to the standard concentrations, including the blank. The chlorine content of a standard should have little effect on the net sulfur intensity.

7.1.6 The calibration equation for chlorine must include a correction term for the sulfur concentration. A suitable equation follows:

$$Cl = (mI + b) (1 + k*S) \quad (1)$$

where:

I = net chlorine intensity
m, b, k* = adjustable parameters
S = sulfur concentration

Using a least squares procedure, the above equation or a suitable substitute should be fitted to the data. Many XRF instruments are equipped with suitable computer programs to perform this fit. In any case, the resulting equation should be shown to be accurate by analysis of suitable standard materials.

7.2 Analysis.

7.2.1 Prepare a calibration curve as described in Sec. 7.1. By periodically measuring a very stable sample containing both sulfur and chlorine, it may be possible to use the calibration equations for more than 1 day. During each day, the suitability of the calibration curve should be checked by analyzing standards.

7.2.2 Determine the net chlorine and sulfur intensities for a sample in the same manner as done for the standards.

7.2.3 Determine the chlorine and sulfur concentrations of the samples from the calibration equations. If the sample concentration for either element is beyond the range of the standards, the sample should be diluted with mineral oil and reanalyzed.

8.0 QUALITY CONTROL

8.1 Refer to Chapter One for specific quality control procedures.

8.2 One sample in ten should be analyzed in triplicate and the relative standard deviation reported. For each triplicate, a separate preparation should be made, starting from the original sample.

8.3 Each sample, or one sample in ten from a group of similar samples, should be spiked with the elements of interest by adding a known amount of chlorine or sulfur to the sample. The spiked amount should be between 50% and 200% of the sample concentration, but the minimum addition should be at least five times the limit of detection. The percent recovery should be reported and should be between 80% and 120%. Any sample suspected of containing >25% water should also be spiked with organic chlorine.

8.4 Quality control standard check samples should be analyzed every day and should agree within 10% of the expected value of the standard.

9.0 METHOD PERFORMANCE

9.1 These data are based on 47 data points obtained by seven laboratories who each analyzed four used crankcase oils and three fuel oil blends with crankcase in duplicate. A data point represents one duplicate analysis of a sample. Two data points were determined to be outliers and are not included in these results.

9.2 Precision. The precision of the method as determined by the statistical examination of interlaboratory test results is as follows:

Repeatability - The difference between successive results obtained by the same operator with the same apparatus under constant operating conditions on identical test material would exceed, in the long run, in the normal and correct operation of the test method, the following values only in 1 case in 20 (see Table 1):

$$\text{Repeatability} = 5.72 \sqrt{x^*}$$

*where x is the average of two results in $\mu\text{g/g}$.

Reproducibility - The difference between two single and independent results obtained by different operators working in different laboratories on identical test material would exceed, in the long run, the following values only in 1 case in 20:

$$\text{Reproducibility} = 9.83 \sqrt{x^*}$$

*where x is the average value of two results in $\mu\text{g/g}$.

9.3 Bias. The bias of this test method varies with concentration, as shown in Table 2:

$$\text{Bias} = \text{Amount found} - \text{Amount expected.}$$

10.0 REFERENCE

1. Gaskill, A.; Estes, E.D.; Hardison, D.L.; and Myers, L.E. Validation of Methods for Determining Chlorine in Used Oils and Oil Fuels. Prepared for U.S. Environmental Protection Agency, Office of Solid Waste. EPA Contract No. 68-01-7075, WA 80. July 1988.

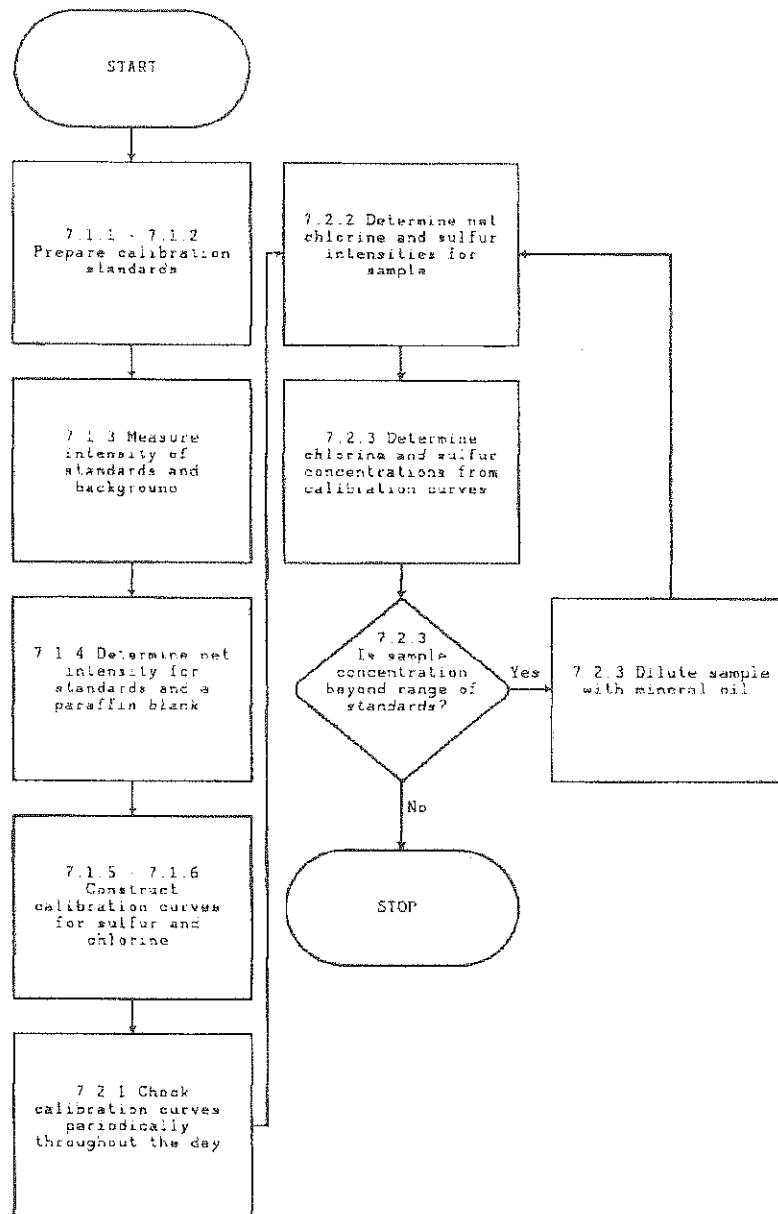
TABLE 1. REPEATABILITY AND REPRODUCIBILITY
FOR CHLORINE IN USED OILS BY
X-RAY FLUORESCENCE SPECTROMETRY

| Average value, $\mu\text{g/g}$ | Repeatability, $\mu\text{g/g}$ | Reproducibility, $\mu\text{g/g}$ |
|-----------------------------------|-----------------------------------|-------------------------------------|
| 500 | 128 | 220 |
| 1,000 | 181 | 311 |
| 1,500 | 222 | 381 |
| 2,000 | 256 | 440 |
| 2,500 | 286 | 492 |
| 3,000 | 313 | 538 |

TABLE 2. RECOVERY AND BIAS DATA FOR CHLORINE IN
USED OILS BY X-RAY FLUORESCENCE SPECTROMETRY

| Amount expected, $\mu\text{g/g}$ | Amount found, $\mu\text{g/g}$ | Bias, $\mu\text{g/g}$ | Percent bias |
|--|-------------------------------------|--------------------------|-----------------|
| 320 | 278 | -42 | -13 |
| 480 | 461 | -19 | -4 |
| 920 | 879 | -41 | -4 |
| 1,498 | 1,414 | -84 | -6 |
| 1,527 | 1,299 | -228 | -15 |
| 3,029 | 2,806 | -223 | -7 |
| 3,045 | 2,811 | -234 | -8 |

METHOD 9075
TEST METHOD FOR TOTAL CHLORINE IN NEW AND USED
PETROLEUM PRODUCTS BY X-RAY FLUORESCENCE SPECTROMETRY (XRF)



METHOD 1010
PENSKY-MARTENS CLOSED-CUP METHOD FOR DETERMINING IGNITABILITY

1.0 SCOPE AND APPLICATION

1.1 Method 1010 uses the Pensky-Martens closed-cup tester to determine the flash point of liquids including those that tend to form a surface film under test conditions. Liquids containing non-filterable, suspended solids shall also be tested using this method.

2.0 SUMMARY OF METHOD

2.1 The sample is heated at a slow, constant rate with continual stirring. A small flame is directed into the cup at regular intervals with simultaneous interruption of stirring. The flash point is the lowest temperature at which application of the test flame ignites the vapor above the sample.

For further information on how to conduct a test by this method, see Reference 1 below.

3.0 METHOD PERFORMANCE

3.1 The Pensky-Martens and Setaflash Closed Testers were evaluated using five industrial waste mixtures and p-xylene. The results of this study are shown below in °F along with other data.

| <u>Sample</u> | <u>Pensky- Martens</u> | <u>Setaflash</u> |
|-----------------------|----------------------------|------------------|
| 1 ² | 143.7 ± 1.5 | 139.3 ± 2.1 |
| 2 ² | 144.7 ± 4.5 | 129.7 ± 0.6 |
| 3 ² | 93.7 ± 1.5 | 97.7 ± 1.2 |
| 4 ² | 198.0 ± 4.0 | 185.3 ± 0.6 |
| 5 ² | 119.3 ± 3.1 | 122.7 ± 2.5 |
| p-xylene ² | 81.3 ± 1.1 | 79.3 ± 0.6 |
| p-xylene ³ | 77.7 ± 0.5 ^a | -- |
| Tanker oil | 125, 135 | -- |
| Tanker oil | 180, 180 | -- |
| Tanker oil | 110, 110 | -- |
| DIBK/xylene | 102 ± 4 ^b | 107 |

^b75/25 v/v analyzed by four laboratories.

^a12 determinations over five-day period.

4.0 REFERENCES

1. D 93-80, Test Methods for Flash Point by Pensky-Martens Closed Tester, American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103, 04.09, 1986.
2. Umana, M., Gutknecht, W., Salmons, C., et al., Evaluation of Ignitability Methods (Liquids), EPA/600/S4-85/053, 1985.
3. Gaskill, A., Compilation and Evaluation of RCRA Method Performance Data, Work Assignment No. 2, EPA Contract No. 68-01-7075, September 1986.

METHOD 9041A

pH PAPER METHOD

1.0 SCOPE AND APPLICATION

1.1 Method 9041 may be used to measure pH as an alternative to Method 9040 (except as noted in Step 1.3) or in cases where pH measurements by Method 9040 are not possible.

1.2 Method 9041 is not applicable to wastes that contain components that may mask or alter the pH paper color change.

1.3 pH paper is not considered to be as accurate a form of pH measurement as pH meters. For this reason, pH measurements taken with Method 9041 cannot be used to define a waste as corrosive or noncorrosive (see RCRA regulations 40 CFR §261.22(a)(1)).

2.0 SUMMARY OF METHOD

2.1 The approximate pH of the waste is determined with wide-range pH paper. Then a more accurate pH determination is made using "narrow-range" pH paper whose accuracy has been determined (1) using a series of buffers or (2) by comparison with a calibrated pH meter.

3.0 INTERFERENCES

3.1 Certain wastes may inhibit or mask changes in the pH paper. This interference can be determined by adding small amounts of acid or base to a small aliquot of the waste and observing whether the pH paper undergoes the appropriate changes.

CAUTION: THE ADDITION OF ACID OR BASE TO WASTES MAY RESULT IN VIOLENT REACTIONS OR THE GENERATION OF TOXIC FUMES (e.g., hydrogen cyanide). Thus, a decision to take this step requires some knowledge of the waste. See Step 7.3.3 for additional precautions.

4.0 APPARATUS AND MATERIALS

4.1 Wide-range pH paper.

4.2 Narrow-range pH paper: With a distinct color change for every 0.5 pH unit (e.g., Alkaacid Full-Range pH Kit, Fisher Scientific or equivalent). Each batch of narrow-range pH paper must be calibrated versus certified pH buffers or by comparison with a pH meter which has been calibrated with certified pH buffers. If the incremental reading of the narrow-range pH paper is within 0.5 pH units, then the agreement between the buffer or the calibrated pH meter with the paper must be within 0.5 pH units.

4.3 pH Meter (optional).

5.0 REAGENTS

5.1 Certified pH buffers: To be used for calibrating the pH paper or for calibrating the pH meter that will be used subsequently to calibrate the pH paper.

5.2 Dilute acid (e.g., 1:4 HCl).

5.3 Dilute base (e.g., 0.1 N NaOH).

6.0 SAMPLE COLLECTION, PRESERVATION, AND HANDLING

6.1 All samples must be collected using a sampling plan which addresses the considerations discussed in Chapter Nine of this manual.

7.0 PROCEDURE

7.1 A representative aliquot of the waste must be tested with wide-range pH paper to determine the approximate pH.

7.2 The appropriate narrow-range pH paper is chosen and the pH of a second aliquot of the waste is determined. This measurement should be performed in duplicate.

7.3 Identification of interference:

7.3.1 Take a third aliquot of the waste, approximately 2 mL in volume, and add acid dropwise until a pH change is observed. Note the color change.

7.3.2 Add base dropwise to a fourth aliquot and note the color change. (Wastes that have a buffering capacity may require additional acid or base to result in a measurable pH change.)

7.3.3 The observation of the appropriate color change is a strong indication that no interferences have occurred.

CAUTION ADDITION OF ACID OR BASE TO SAMPLES MAY RESULT IN VIOLENT REACTIONS OR THE GENERATION OF TOXIC FUMES. PRECAUTIONS MUST BE TAKEN. THE ANALYST SHOULD PERFORM THESE TESTS IN A WELL-VENTILATED HOOD WHEN DEALING WITH UNKNOWN SAMPLES.

8.0 QUALITY CONTROL

8.1 All quality control data must be maintained and available for easy reference or inspection.

8.2 All pH determinations must be performed in duplicate.

8.3 Each batch of pH paper must be calibrated versus certified pH buffers or a pH meter which has been calibrated with certified pH buffers.

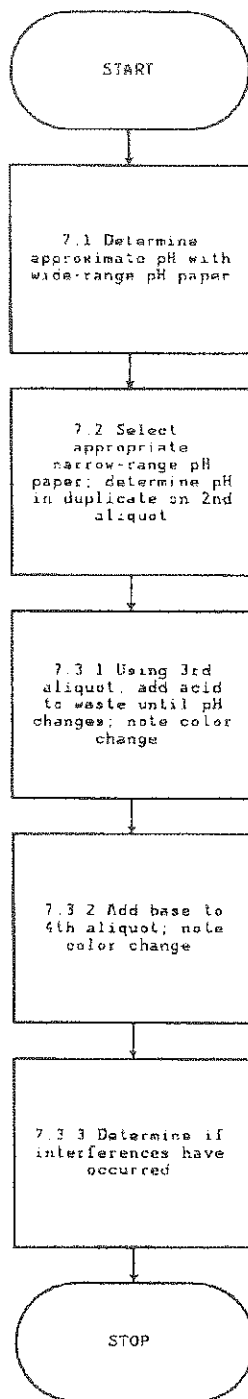
9.0 METHOD PERFORMANCE

9.1 No data provided.

10.0 REFERENCES

10.1 None required.

METHOD 9041A
pH PAPER METHOD



**SPILL PREVENTION, CONTROL AND
COUNTERMEASURES PLAN
SPCC**

**Ortek, Inc.
7601 W. 47th Street
McCook, IL 60525
708-762-5117**

SPILL PREVENTION, CONTROL AND COUNTERMEASURES (SPCC) PLAN

Ortek Inc. 7601 West 47th Street McCook, IL 60525

Date of Ortek's First Plan: June 14, 2002
Date of Last Plan Amendment: February 2013
Date of Last Plan Review: February 2013

Designated staff person(s) responsible for spill prevention: Lowell Aughenbaugh
Bob Kolar

EMERGENCY TELEPHONE NUMBERS:

Notification Contacts:

- | | | |
|---|-------------------|----------------|
| 1. Facility Manager, Lowell Aughenbaugh | (cell) | (314) 563-1595 |
| | (home) | (314) 863-2390 |
| 2. National Response Center | | (800) 424-8802 |
| 3. Illinois Emergency Services & Disaster Agency (ESDA) | | (800) 782-7860 |
| 4. Illinois EPA (Bureau of Land), general phone number | | (217) 782-6761 |
| 5. Cook County Department of Environmental Control | | (312) 603-8200 |
| 6. Village of McCook dial 911 for Fire Department or Police | | (708) 447-1234 |
| 7. Other Ortek Employees, Laurie Witter | (cell) | (630) 417-6399 |
| | (home) | (630) 515-8548 |
| Bob Kolar | (cell) | (708) 415-8813 |
| | (home) | (708) 496-8813 |
| 8. Hospitals -- | LaGrange Memorial | (708) 352-1200 |
| | MacNeal Hospital | (708) 783-9100 |

Clean-Up Contractors:

- | | |
|---|----------------|
| 1. Future Environmental (contacts = Jim, Steve, Tom) | (708) 479-6900 |
| 2. North Branch Environmental (contacts = John or JD) | (630) 529-0240 |
| 3. HazChem Environmental (contacts = Al or Chris) | (630) 458-1910 |
| 4. Turn-Key Environmental (contacts= Joe or Larry) | (815) 929-9440 |
| 5. Duke's Oil (contact = Gary) | (630) 860-5689 |

Supplies and Equipment:

- | | |
|--|----------------|
| 1. North Branch Environmental | (630) 529-0240 |
| 2. or any of the other clean-up contractors listed above | |

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ATTACHMENTS:

- A. Substantial Harm Criteria Determination Checklist
- B. Plot Plan Sketch
- C. Storage Tank Data
- D. Inspection Checklist
- E. Training Records
- F. 40 CFR 279.52
- G. 40 CFR 112
- H. Illinois Emergency Contact Information
- I. Maps to Hospitals

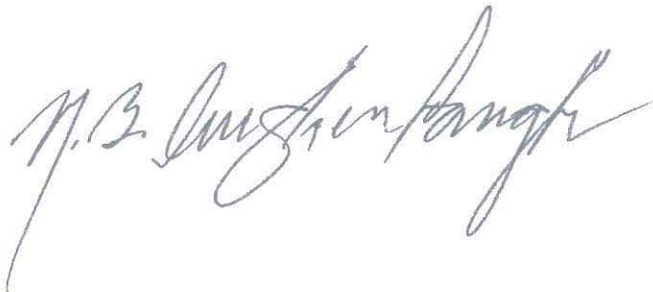
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PROFESSIONAL ENGINEER CERTIFICATION

CERTIFICATION: I hereby certify that I and/or those under my direction have examined the facility and having reviewed this SPPC Plan, attest that the Plan has been prepared in accordance with good engineering practices.

Engineer: Nolan Aughenbaugh Registration Number: 062-047575 State: Illinois

Signature: Nolan Aughenbaugh Date of Plan Certification: October 25, 2007



**SPILL PREVENTION, CONTROL AND COUNTERMEASURE PLAN
MANAGEMENT APPROVAL**

I hereby certify that the necessary resources to implement this Plan have been committed.

Lowell Aughenbaugh

Lowell Aughenbaugh, Facility Manager

6-14-02
& 10-24-07

**CERTIFICATION OF THE APPLICABILITY OF THE SUBSTANTIAL HARM CRITERIA
CHECKLIST**

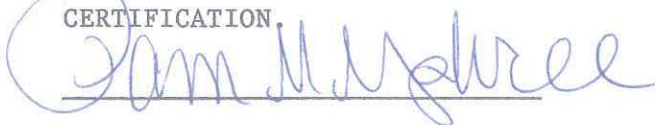
Please see Attachment A.



STATE OF MS
COUNTY OF LAFAYETTE



PERSONALLY APPEARED BEFORE ME, THE UNDERSIGNED AUTHORITY IN AND FOR SAID COUNTY AND STATE, ON THIS 2ND DAY OF NOVEMBER, 2012 LOWELL AUGHENBAUGH EXECUTED THE FOLLOWING DOCUMENT IN MY PRESENCE: PROFESSIONAL ENGINEER CERTIFICATION.



3 11-2-12



SPILL PREVENTION, CONTROL AND COUNTERMEASURE PLAN

COMPLIANCE REVIEW PAGE

In accordance with 40 CFR 112.5(b), a review and evaluation of this SPCC Plan is conducted at least once every three years. These reviews and evaluations are recorded below:

| <u>Reviewer (signature)</u> | <u>Reviewer (print)</u> | <u>Date</u> | <u>Comments</u> | <u>Is P.E. re-certification required?</u> |
|-----------------------------|-------------------------|-------------|-----------------|---|
| | | | | <u>Yes or No</u> |

| | | | | |
|----|--|------------|--|-----|
| 1. | Bob Madl / Lowell Aughenbaugh | 6-14-02 | | yes |
| 2. | Lowell Aughenbaugh | 6-03-03 | | no |
| 3. | Lowell Aughenbaugh | June, 2005 | | |
| 4. | Lowell Aughenbaugh / Nolan Aughenbaugh | Oct, 2007 | | |
| 5. | Lowell Aughenbaugh | Oct., 2009 | | |
| 6. | Nolan Aughenbaugh | Nov., 2012 | | |
| 7. | "Ortek Staff" / Lowell Aughenbaugh | 2010-2013 | | |

FACILITY INFORMATION

Name: Ortek Inc.

Mailing Address: 7601 West 47th Street
McCook, IL 60525

Street Address: 7601 West 47th Street
McCook, IL 60525

Owner: North American Refining Corp.
7601 West 47th Street
McCook, IL 60525

Facility Contact: Lowell Aughenbaugh
(708) 762-5117

Location: Approximately 1.0 miles north of Interstate I-55 off Harlem Ave. (I-55 Exit 283) then Left (west) on 47th Street. The Site is located in Cook County, Illinois

Facility Description: Ortek Inc. is an oily waste water treatment facility, used oil recycler (re-refiner), compounder/blender, and packager. The site comprises of approximately 6-acres which is bermed\contained on all sides. The Company owns and operates various equipment including forklifts, backhoes, a crane, man-lift, bobcat (skidsteer), loading docks, truck scale, storage tanks, process equipment, and high & low pressure boilers.

Fixed Storage: All the storage tanks at the Ortek site are aboveground storage tanks (AST's). A listing of these tanks and related specific information are contained in Appendix C (Storage Tank Data).

Total liquid storage capacity: 2,531,870 gallons

Attachment B, contains a facility Plan Map showing the location of storage tanks, process equipment, and the general layout of the facility.

PAST SPILL EXPERIENCE – 40 CFR 112.7 (a)

| <u>Description of Spill</u> | <u>Corrective Actions Taken</u> | <u>Plan for Preventing Recurrence</u> |
|---|---------------------------------|---|
| 1987 tank pressure release sulfurized lard tank | Area cleaned up / remediated | Personnel training & press safety release installed on process tank |

POTENTIAL EQUIPMENT FAILURES – 40 CFR 112.7 (b)

| <u>Potential Failure</u> | <u>Spill Direction</u> | <u>Volume Released</u> | <u>Spill Rate</u> |
|---|--------------------------------------|------------------------|--------------------------------------|
| Complete failure of a full tank | Inside Dike Area | Est. 50,000 gallons | Instantaneous Assuming worst case |
| Partial failure of a full tank | Inside Dike Area | up to 5,000 gallons | Gradual to Instantaneous |
| Storage Tank, or Tanker overfill, supervised | Inside Dike Area | up to 1,000 gallons | assume 100 gallons / min |
| Pipe failure | Inside Dike Area Or un-diked area | up to say 1000 gals | assume 100 gallons / min |
| Small Leak in pipe, flange, valve, or packing | Inside Dike Area Or pump house | up to 100 gallons | Gradual |
| Tank truck leak or failure | Truck offloading areas | up to 5000 gallons | Gradual to Instantaneous |
| Hose leak during transfer | Northbound down RR tracks | up to 500 gallons | assume 100 gals / minute |
| Pump rupture or failure | Pump house or Diked area | up to 500 gallons | assume 100 gals / minute |

CONTAINMENT AND DIVERSIONARY STRUCTURES – 40 CFR 112.7 (c)(1)

- i. Dikes are provided around the tanks that store various lubricating oils/additives, and other materials across the facility. The floor and walls of the containment structures are concrete, or clay earthened dikes. Spills within any containment area are expected to be contained in that area. In addition to tank storage areas being contained, the entire 6-acre Ortek facility is “contained”, forming a secondary, backup containment. Earthen and/or concrete berms/walls surround the entire site, with native clay forming the native soil base of the facility. Consultants during the 1970’s completed surveying and volume calculations and established that the site as it lays could contain over 4-million gallons of liquid(s) before any spilled material could leave the site.
- ii. The loading and unloading area for tanker trucks and/or railcars is also made of concrete/asphalt. However some loading of product materials is completed over unprotected gravel areas. The use of readily available spill equipment would prevent any potential spills from spreading far including Ortek’s liquid vacuum truck, backhoe, and other resources available to the company.
- iii. The facility operates its own wastewater treatment plant and all drainage of rainwater within the facility flows thru the treatment plant. In addition, there are no sewers located within the facilities boundaries.
- iv. Ortek keeps on-hand various absorbent spill pads, absorbent clays, oil booms, numerous portable liquid pumps, vacuum truck, backhoe, case brand skidsteer (bobcat), and other such equipment should a spill ever occur. In addition, most dikes located at this site contain pumps inside each dike that are capable of pumping any spills that may occur within that dike. Ortek works with most of Chicago-Land’s top spill response contractors, and as a result generally have these trucks/emergency equipment available to us as well.

DEMONSTRATION OF PRACTICABILITY – 40 CFR 112.7(d)

Ortek Inc. has determined that use of the containment and diversionary structures and the use of readily available spill equipment to prevent discharged oil or other materials/liquids from reaching navigable waterways or sewers are practical and effective at this facility. Probably one of the best demonstrations of this at this site has been past heavy rain events (floods). During flooding events Ortek has been able to evaluate the path spills may take as well as the effectiveness of dikes, containment structures, berms, and/or diversionary structures. Because Ortek treats all it’s rainwater, we are in-effect practicing spill procedures every time it rains (although I don’t believe we have recorded all this in our spill “training” records).

FACILITY DRAINAGE – 40 CFR 112.7(e)(1)

- i. Spills from above ground storage tanks will be restrained by secondary containment. Spills outside of the dike area will be contained by the use of the facilities spill equipment.
- ii. Rainwater and/or melting snow is sent to Ortek’s own on-site waste water treatment plant.

BULK STORAGE TANKS – 40 CFR 112.7(e)(2)

- i. All of the AST's are of Underwriter Laboratories UL-142 construction and/or API 650 and are compatible with the oil or liquid that they contain and the temperature and pressure conditions of storage.
- ii. Secondary containment volume is greater than 110 percent of the largest tank in the facility.
- iii. 55 gallon drums containing lubricating oil additives or other materials are stored in few common areas and periodically monitored for any signs of leaks.
- iv. There are no underground storage tanks (UST's) at the Site.
- v. Thickness testing has historically been completed on AST's every five years using a system of non-destructive testing such as ultrasonic or x-ray. Visual inspections of tanks and dikes are performed daily.
- vi. Each storage tank (AST) is equipped with a floating level style level gauge. Venting capacity is suitable for the anticipated fill and withdrawal rates. Tank level gauges are checked for accuracy whenever metering product through tested positive displacement meters, and/or measured and marked off on the tank knowing the volume per foot (gallons per foot), for any diameter tank.
- vii. Oil leaks that result in a loss of oils from tanks, gaskets, packing, or other sources are generally corrected immediately, with spill pans or a bucket placed under the leak, for example, until the leak can be repaired.

TRANSFER OPERATIONS, PUMPING, AND IN-PLANT PROCESSES – 40 CFR 112.7(e)(3)

- i. There is no buried/underground piping in the facility. All piping is above grade.
- ii. Pipelines not in service or on standby for an extended period (over 3 months) are capped or blank flanged.
- iii. Pipe supports are designed to minimize abrasion and corrosion and to allow for expansion and contraction.
- iv. Aboveground pipelines, pumps and valves are examined daily to assess their condition. Clearing a pipeline, along with air pressure testing of the piping can be conducted if any piping section is questioned.
- v. Aboveground pipelines do not come in contact with truck or railcar loading/unloading operations.

TANK CAR AND TRUCK LOADING / UNLOADING RACKS – 40 CFR 112.7(e)(4)

- i. The tank truck loading and unloading procedures meet the minimum requirements of the U. S. Department of Transportation.
- ii. Parking brakes on trucks/railcars are set prior to loading/unloading. We request that all running tanker trucks engines are shut down during these operations.
- iii. The lower-most drain and other outlets on each tank trucks/railcar are inspected for leaks prior to and while loading and prior to departure. In addition, the internal safety valves are checked on tank trucks prior to loading and while sampling.
- iv. Deliveries and transfers are performed by qualified/trained Ortek Inc. employees.

INSPECTION AND RECORDS - 40 CFR 112.7(e)(8)

Daily visual inspections consist of a complete walk-through of the facility to check the following: piping, equipment and tanks for leakage, concrete\ground for staining and/or discoloring. In addition, tank inventory is taken on all tanks once per working day.

The checklist provided in Attachment D is followed during weekly inspections. These items covered in the inspections are performed in accordance with written procedures such as API standards and with good engineering practices.

SECURITY – 40 CFR 112.7(e)(9)

Ortek Inc. is manned twenty-four hours per day seven days per week. In addition, doors, entrance gates, etcetera are locked and secured during off hours. The facility is generally surrounded by six-foot high fencing at the property boundaries.

- i. Valves are closed after each operation at the facility. All pumps are shut off after each operation. There are generally multiple valves on each loading/unloading line so overlooking one valve should not lead to any spills. In addition, sample valves on storage tanks are capped.
- ii. The plant is illuminated twenty-four hours per day, and warning signs are posted informing visitors or others that they must check in, or not trespass. In addition, 24-hour, round the clock video surveillance is now recorded for a large portion of the facility.

PERSONNEL TRAINING AND SPILL PREVENTION PROCEDURES-40CFR 112.7 (e)(10)

- i. Facility personnel have been instructed by management in the operation and maintenance of pollution prevention equipment and pollution control laws and regulations.
- ii. Facility manager, Lowell Aughenbaugh is ultimately responsible for oil spill prevention at this facility. Mr. Bob Kolar also works in this capacity.
- iii. Yearly spill prevention briefings are provided by Management for operating personnel to ensure adequate understanding of the SPCC plan. These briefings highlight any past spill events or failures and recently developed precautionary measures. Training includes oil spill prevention, containment, and retrieval methods. A simulation of an on-site vehicular spill has been conducted and future exercises shall be periodically held to prepare for possible spill responses. Also, as discussed earlier, rain events have been useful learning/training experience, as rain accumulation and runoff is evaluated as if the rainwater had been a "spill". New employees are trained concerning the SPCC plan, generally within 2 weeks of starting work.

Instructions and phone numbers regarding the reporting of a spill to the National Response Center and the state are listed on the cover page of this plan and have been posted.

CONTINGENCY PLANNING AND EMERGENCY PROCEDURES

40 CFR 259.52(b)

This SPCC Plan was generally prepared under the guidelines of 40 CFR, Part 112 (Oil Pollution Prevention), however 40 CFR part 279.52 calls for additional contingency planning and/or emergency procedures that can be addressed or added to an owners/operators SPCC plan. That is the intent of this portion of Ortek's Plan:

40 CFR 259.52(b): Owners and operators of used oil processing and re-refining facilities must comply with the following requirements:

259.52(b)(1): Each owner or operator must have a contingency plan for the facility. The plan must be designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of used oil to air, soil, or surface water, and the plan must be carried out immediately whenever there is a fire, explosion, or release of used oil which could threaten human health or the environment.

259.52(b) (2): The plan must describe the actions facility personnel must take in response to any potential fire(s), explosion(s), or unplanned sudden or non-sudden release of used oil to the air, soil, or surface water at the facility in respect to Paragraphs (b)(1) through (b)(6) as further described herein:

(iii) ARRANGEMENTS WITH LOCAL POLICE & FIRE DEPARTMENTS, HOSPITALS, CONTRACTORS, AND/OR STATE AND LOCAL EMERGENCY TEAMS/SERVICES:

FIRE/POLICE/911/ENVIRONMENTAL (VILLAGE OF MCCOOK): The phone number (emergency contact) information for the Fire/Police or Village of McCook is given on the first page of this plan, otherwise "911" may also be dialed by telephone in any emergency situation. The Ortek Used Oil facility is located within the Village of McCook, Illinois. The Village of McCook has been excellent in the past in responding to any "emergency" situation, perceived or real. Cooperation between the Village of McCook and Ortek in such matters has been excellent, in our opinion, and we will continue to work with the Village in any manner that pertains to our combined safety, health, and the environment. The Village of McCook maintains a Fire Department, Police Department, Environmental coordinator, and 911 services. In March of 1999, the Village of McCook's fire department responded to extinguish an office fire, based on a centralized fire alarm and sprinkler system located at the Ortek facility that contacted the Fire Department automatically, in the middle of the night. In that case, McCook joined forces with other Fire Departments in the area, such as the Village of Lyons, and Countryside, for example, to be more certain that they could adequately contain the fire. By agreement, the Village of McCook maintains primary emergency authority over police and/or fire type of emergencies (or contingencies) at the Ortek facility (as Ortek exists within their Village boundaries/jurisdiction), however, as the last example suggests, we or the Village of McCook are not afraid to ask for additional help, as and if needed. Ortek will note that the Villages in our area typically work together in responding to any emergency situation, through existing agreements between themselves. The Fire Chief, deputy chief and other personnel from the Village of McCook routinely visit/inspect the Ortek facility, and in our opinion, are fairly familiar with the facility. Ortek has provided the Village of McCook with a copy of our SPCC plan, and has sat down and talked about our facility with the Mayor, and Village Fire and Police Departments. In the past, we will note that we have

conducted fire training/response with Ortek employees as well as with those from the Village of McCook. The Village of McCook in the past has even located a large tractor trailer training center at the Ortek facility for some time, in our joint spirit of cooperation.

HOSPITALS: Attachment F (or Appendix F) of this Plan, contains Maps to the two closest hospitals to the Ortek facility, and spelled out directions from the facility to each Hospital. Phone numbers for these Hospitals are listed on the first page, under emergency contact phone numbers. "911" may also be dialed in the event of an ambulance (and/or emergency medical personnel) being needed, for example. In recent history, Ortek personnel have only utilized the LaGrange Hospital located at 5101 Willow Springs Road, LaGrange Illinois. However, two of the closest local hospitals have been given MSDS sheets for used oil, and remain in our plan, if for no other reason than for contingency planning purposes (back-up Hospital, or route). Ortek understands that in any potential injury or medical situation, that we (the designated coordinator or those under him) must assess the situation and decide to transport any individual to the hospital, or to *not* move the individual (it may not be medically safe to move an individual, yet the location may not allow the individual to remain there) and/or calling 911 to get an ambulance and/or medical-emergency personnel to come on-site.

In the last 10 years, Ortek has only had one medical type of situation whereby an employee cut himself on the arm with a box-cutter. This employee was made a quick bandage to stop/contain the bleeding and then driven to LaGrange Hospital, where Hospital personnel promptly attended his needs within their emergency room. The Ortek employee was accompanied by two other Ortek employees who talked with Hospital personnel as to the nature of his situation. This is the same type of response Ortek/Ortek personnel are committed to in the event of any medical situation. LaGrange Hospital has told us that they need no copies of our SPCC or other plans or MSDS as they can access medical information regarding used oils, fire, cuts, heart attacks, explosions, etcetera, from their staff, or on-line, nearly instantaneously. They (LaGrange Hospital) did say it would be useful that someone familiar with our operations, the nature of used oil, and any person potentially injured (nature of injury or medical situation) be around to communicate such to medical personnel. Although it should go without saying, it is therefore Ortek Policy that any person injured or suffering any medical situation, be attended to during and until handed over to professional/trained medical personnel. Ortek personnel are not to move the individual unless it is deemed safe to do so, as Ortek personnel are generally not medical experts on whether an injured person can be moved for example. Should personnel be in danger of fire, explosion, or other threat(s), all persons are instructed to move or be evacuated (moved) as discussed under Ortek's evacuation planning section of this Plan.

EMERGENCY RESPONSE TEAMS/CONTRACTORS, EQUIPMENT SUPPLIERS: Ortek, lists in this plan on page 1, the phone numbers (emergency contact information) for various emergency contractors, including North Branch Environmental, Future Environmental, Hazchem, or Turn-Key Environmental. These contractors generally specialize in liquid handling (e.g. pumping, permitting, transportation, disposal, containment, and/or removal) and other environmental response work (e.g., tank cleaning, sludge removal, soil clean-up, etcetera). These contractors generally keep large amount of spill response equipment/supplies on hand, or know how to get such supplies quickly as well (thus Ortek, does not focus on equipment suppliers in this plan). As discussed elsewhere in this report, Ortek has a great working relationship with these ChicagoLand contractors, and can call any of these response contractors, night or day, to mobilize to the Ortek facility. These contractors, represent some of the best and/or largest environmental contractors (of liquids/used oils) in the ChicagoLand area and they possess just about any emergency response personnel, trucks, equipment, or supplies to deal with just about any situation, except say explosions, or fire situations (any potential fires would be dealt with by the fire department, whereas cleanup of firewater and

debris, for example, may be performed by one of these contractors). As discussed, elsewhere in this plan, Ortek also keeps on hand numerous emergency response supplies, equipment, and personnel capable to minimize, contain, cleanup, limit, or abate any potential leak, spill, or release of products, or used oils. All the environmental contractors listed in this plan (page 1 phone numbers), are very familiar with the facility, used oils, and emergency response. Our agreement with these contractors includes that they will not deny our facility their help, resources, and commitment to respond in the event of an emergency, or any other situation where they can help Ortek and help to protect human health and/or the environment.

We would note that the contractors discussed above are private contractors as compared to Government based emergency response teams. At the same time, the government (State, Local, or Federal Government) provides various contacts, reporting services or other services that are identified in this plan, above and beyond the role of say fire departments, police, etcetera. An individual from the Cook County Department of Environment, as well as the Illinois-EPA have stated that they would help us however they can for emergency response or contingency planning, but that we should contact the Office of Emergency Response (OER) / Illinois Emergency Management Agency (IEMA) at 800-782-7860, which is the first step, if a release has occurred. We will note that on page one, again under emergency telephone numbers, that the Illinois-EPA's phone number is provided, as well as the OER/ESDA/IEMA, National Response Center, Cook County Department of Environmental Control, and the Village of McCook.

LIST OF EMERGENCY EQUIPMENT **(location)**

| | |
|--|------------------------|
| SPILL PADS / TOWELS / SHOP RAGS | blending building |
| FIRE EXTINGUISHERS / FIRE HYDRANTS WITHIN PLANT & AT PROPERTY LIMITS | whole site |
| BLENDING BUILDING& OTHER WATER SPRINKLER SYSTEMS | tower / lab / blending |
| BLENDING BUILDING FIRE WATER MAIN | |
| BLENDING BUILDING, WATER PRESSURE DROP ALARM (CENTRALIZED) AUTOMATIC REPORTING | |
| TELEPHONES | mobile |
| EXIT LIGHTS / FIRE OR SMOKE ALARMS | buildings |
| ORTEK PERSONNEL | mobile |
| CLAY SOIL (ON-SITE) / OIL DRY / CLAY (CLAY BAGS USED IN OLD CLAY HOUSE) | whole site / blending |
| SHOVELS / TOOLS | main't area |
| FRONT-END LOADER / BOBCAT | mobile |
| MECHANICAL PUMPS / SUMP PUMPS / HOSES | whole plant area |
| RED VACUUM TRUCK / HOSES | mobile |
| GENERATORS / EXTENSION CORDS | blending / warehouse |
| 55-GALLON DRUMS / 5-GALLON PAILS FOR DRIP CONTROL, DIRTY RAGS, ETC. | blending / pad |
| AIR MONITORING EQUIPMENT (OXYGEN, H2S, PID, CO, EXPLOSIVE LEVELS, ETC) | lab |
| PPE (PERSONAL PROTECTIVE EQUIPMENT, E.G., GLOVES, MASKS, BOOTS, COVERALLS, HARDHATS, SAFTY GLASSES) | |
| FIRST AID KITS | lab |
| EYE WASH STATIONS / SHOWERS / SINKS / CLEANUP | locker room / lab |
| WELDERS | mobile |
| STORAGE TANKS TO TRANSFER UNSAFE OR LEAKY TANKS TO | storage areas |
| SPCC PLAN / EVACUATION PLAN / SITE MAP / LIST OF EMERGENCY CONTACTS, | office / lab |
| ROUTE TO HOSPITAL MAPS/DIRECTIONS | lab / office |
| MATERIAL SAFTY DATA SHEET | lab / office |
| ALARM SYSTEMS (WITHIN PLANT/BUILDINGS/ PUMP HOUSES), FIRE, WATER, STEAM, PRESSURE, WWTP, boilers, gate | |

EVACUATION PLAN

In the event of fire, explosion(s), or any situation not safe for Ortek employees to remain at work (at the facility) or anyone (non-employees) located at the facility, personnel are to evacuate to the Bowling Alley located directly north of the facility, just across 47th street. Generally, the bowling alley should be considered a safe primary evacuation location, as it is generally up-wind (prevalent-upwind) location, offering a good vantage of the facility, and typically far enough from the process and storage areas of the facility to be deemed safe. Personnel may wish to move even further north (northwest), say within the parking lot of the bowling alley or even further away, should the potential for say explosions be possible. Should this primary evacuation area be deemed unsafe, a secondary location should be established by the on-site coordinator, upwind, out of the way of emergency personnel, and at a distance deemed safe either from explosions, fire, or whatever the situation may warrant. Evacuation will be made known to each employee by telephone, intercom, alarm, signals, employee hand held radios, or in-person.

Personnel/Employees should immediately leave any unsafe area and attempt to go to the primary evacuation area (i.e. bowling alley). Please do not further endanger yourselves by going through a fire, spill, or blocked, or unsafe area in order to reach safety! An employee who first observes any safety situation that calls for evacuation, that employee should make it known to others, in a safe manner, via, telecom, hand held radio, in person, telephoning, etcetera. Employees are certainly not expected to wait to be told an area is unsafe, especially if they are the first to see or realize such a situation, please leave the area immediately. If a valve, pump, or process can be safely shut-off before evacuating an area, please do so, especially, if it will help to minimize any potential release, or other emergency situation. Once again, if any personnel are blocked by fire or other situation to reach the evacuation area, please do not endanger yourself to reach the evacuation area, by going through a more dangerous area. The Ortek facility is relatively big, and there should always be a safe evacuation route, even if one has to go through the forest preserve to the south of the plant, and come around to the primary evacuation area (i.e. bowling alley) via the woods, Harlem Avenue, Joliet Avenue, or through a neighbor's property.

If able to evacuate in a safe manner and time, personnel are encouraged to bring this SPCC plan, list of emergency contacts, a mobile telephone, a coat, and so forth. The emergency coordinator, or his designee will then account for all Ortek employees, to make sure everyone has made it out of the facility (or is accounted for). This plan can then be continued/carried out from the evacuation area, for example, coordinating with emergency personnel (e.g. fire department, police, environmental contractors, and so forth). In the event, of an extended evacuation from the facility, employees may be allowed to leave, once they have been accounted for, and are no longer needed by emergency personnel or the on-site coordinator or his designee(s).

EMERGENCY PROCEDURES: The emergency coordinator for this facility is Lowell Aughenbaugh, with Bob Kolar, and Laurie Witter as first and second designees, respectively. The Emergency Coordinator or designee must be available to respond to an emergency by being on call, on-site, and/or able to reach the facility within a short period of time, with the responsibility of coordinating emergency response measures. This person must be familiar with the aspects of this Plan, facility operations, the characteristics of used oil, location of records, and facility layout.

If ever there is an imminent or actual emergency situation, the emergency coordinator or designee must:

- a) activate an internal facility alarm(s), where applicable, to notify all facility personnel, and
- b) notify appropriate State or local agencies with designated response roles if their help is needed,
- c) identify the character, source (e.g. tank number, building, or area), amount, and extent of any released material,
- d) assess possible hazards to human health or the environment that may result from any potential release, fire, or explosion (e.g. are any explosions possible??, can the nearby River get contaminated??, will the burning of used oil cause fumes === YES, etcetera),
- e) if explosions, fire, or release of oil to the environment is expected or has occurred and could threaten human health or the environment OUTSIDE of the facility, the coordinator/designee MUST advise the appropriate local authorities of such, and help decide if local areas (e.g. surrounding the facility) should be evacuated. The Ortek facility is located north and west of a large forest preserve which is down-wind and down-gradient to the facility. Certainly, the woods, may not to be evacuated or closed, but the nearby walking trails (to the east – through the forest preserve), or neighbors, businesses to the west and north must certainly be considered. Wind direction, especially if a fire exists, must be considered, and
- f) immediately notify either the government official designated as the on-scene coordinator, or the National Response Center using their 24-hour toll free number of 800-424-8802..... the report must include the name and telephone number of who is reporting (you), name and address of the facility, time and type of incident (e.g. fire, release, etc.), name and quantity of material involved and extent known, any injuries, and possible hazards to human health or the environment OUTSIDE the facility.,
- g) during, before, or soon thereafter (as safety allows) the emergency coordinator or designee must take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other used oil or other places at the facility. These measures include for example stopping any on-going processing, shutting valves, tanks, pipelines, ceasing operations, collecting and containing any release, and removing or isolating any tanks, process areas, or containers, and
- h) monitor for leaks, pressure build-ups, gas generation, ruptures in valves, pipes or other equipment, etcetera, if safety allows,
- i) immediately provide for recycling, storage, or disposal of recovered used oil (that may have been released under this emergency situation),
- j) no waste or used oil that may be incompatible with the released material should be processed or used until cleanup procedures are completed,
- k) ensure that emergency equipment listed in this plan is cleaned and fit for its intended use before operations are resumed,
- l) the owner or operator must notify the Regional Administrator, and appropriate State and local authorities that the facility is in compliance with paragraphs 40 CFR 279.52(b)(6)(viii)(A) and (B) before operations are resumed,
- m) the owner/operator must note in the operating record the time, date and details of any incident that requires implementing the contingency plan. Within 15-days after the incident (30-days required by the State of Illinois), he

must submit a written report on the incident to the Regional Administrator including name address and telephone number of the owner/operator, name, address and telephone of the facility, date, time, and type of incident (e.g. fire, release), extent of injuries, if any, an assessment of actual or potential hazards to human health or the environment, where applicable, and estimated quantity and disposition of recovered material that resulted from the incident (e.g. 92% was recovered of the xyz-gallons released).

ATTACHMENT A

Attachment A

**CERTIFICATION OF THE APPLICABILITY
OF THE SUBSTANTIAL HARM CRITERIA CHECKLIST**

FACILITY NAME: Ortek Inc.

FACILITY ADDRESS: 7601 W. 47th Street
McCook, IL 60525

1. Does the facility transfer oil over water or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?
Yes _____ No X
2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground oil storage tank area?
Yes _____ No X
3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the formula in Attachment C-III, Appendix C, 40 CFR 112 or a comparable formula¹) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments? For further description of fish and wildlife environments, see Appendices I, II, and III to DOC/NOAA's "Guidance for Facility and Vessel Response Environments" (Section 10, Appendix E, 40 CFR 112 for availability) and the applicable Area Contingency Plan.
Yes _____ No X
4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate (Attachment C-III, Appendix C, 40 CFR 112 or a comparable formula¹) such that a discharge from the facility would shut down a public drinking water intake²?
Yes _____ No X
5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil spill in an amount greater than or equal to 10,000 gallons within the last 5 years?
Yes _____ No X

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Lowell Aughenbaugh
Name (please type or print)

Lowell Aughenbaugh
Signature

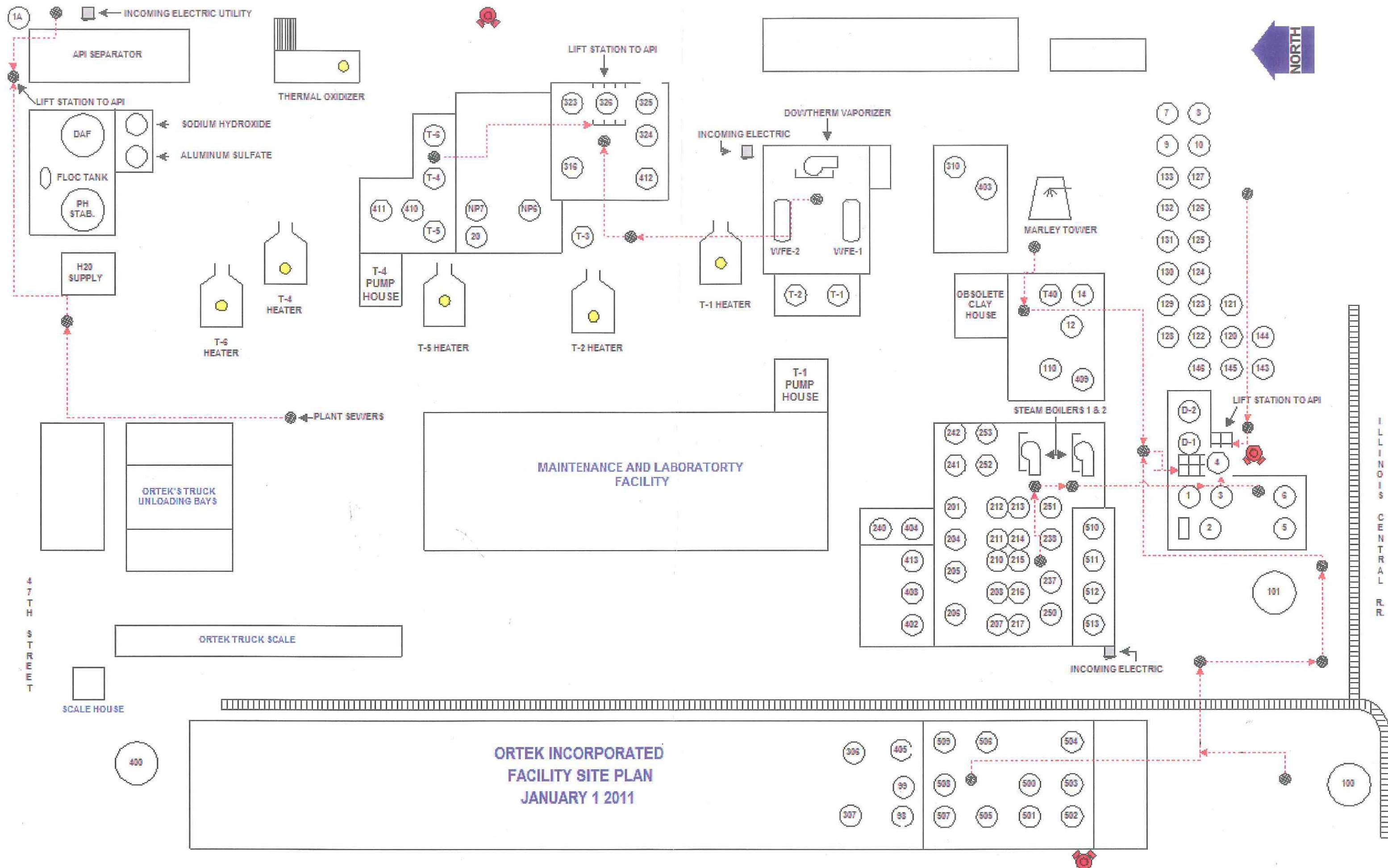
Facility Manager
Title

2/4/2013
Date

¹If a comparable formula is used, documentation of the reliability and analytical soundness of the comparable formula must be attached to this form.

²For the purposes of 40 CFR part 112, public drinking water intakes are analogous to the public water systems as described at 40 CFR 143.2©. (from 40 CFR 112 Appendix C, Attachment C-II)

ATTACHMENT B



ATTACHMENT C

| ORTEK STORAGE TANKS & PROCESS EQUIPMENT - CURRENT | | | | | | | | | | | |
|---|----------------------|----------|------------|----------|--------|---------|----------|-------|--------|--------|-----|
| TNK # | PRODUCT STORED | CAPACITY | YEAR BUILT | DIAMETER | HEIGHT | STATUS | MFG. | S.N.# | gal/in | gal/ft | GAL |
| D-1 | NOT IN SERVICE | 15,000 | 1974 | 12.00 | 17.75 | SAME | | | 70 | 850 | |
| D-2 | NOT IN SERVICE | 15,000 | 1977 | 12.00 | 17.75 | SAME | IMPERIAL | 9831 | 70 | 850 | |
| 1 | OILY WASTE EMULSIONS | 15000 | 1976 | 12.00 | 17.75 | SAME | IMPERIAL | 9831 | 70 | 850 | |
| 2 | OILY WASTE EMULSIONS | 15,000 | 1976 | 12.00 | 17.75 | SAME | | | 70 | 850 | |
| 3 | OILY WASTE EMULSIONS | 15,000 | 1976 | 12.00 | 17.75 | SAME | BACON | | 70 | 850 | |
| 4 | OILY WASTE EMULSIONS | 21,300 | 1962 | 11.00 | 30.00 | SAME | | | 58 | 700 | |
| 5 | OILY WASTE EMULSIONS | 21,300 | 1962 | 11.00 | 30.00 | SAME | | | 58 | 700 | |
| 6 | OILY WASTE EMULSIONS | 21,300 | 1962 | 11.00 | 30.00 | SAME | | | 58 | 700 | |
| 7 | #5 FUEL OIL - WET | 28,770 | 1978 | 11.83 | 35.00 | CHANGE | | | 68 | 825 | |
| 8 | NOT IN SERVICE | 28,770 | 1978 | 11.83 | 35.00 | CHANGE | | | 68 | 825 | |
| 9 | NOT IN SERVICE | 28,770 | 1978 | 11.83 | 35.00 | CHANGE | | | 68 | 825 | |
| 10 | NOT IN SERVICE | 28,770 | 1978 | 11.83 | 35.00 | SCRAP | | | 68 | 825 | |
| 20 | NOT IN SERVICE | 8,000 | 1972 | 13.60 | 16.3 | empty | | | 91 | 1090 | |
| 98 | NOT IN SERVICE | 21,300 | 1969 | 11.00 | 30.00 | CHANGE | | | 58 | 700 | |
| 99 | NOT IN SERVICE | 21,300 | 1969 | 11.00 | 30.00 | CHANGE | | | 58 | 700 | |
| 100 | NOT IN SERVICE | 250,000 | 1954 | 35.00 | 36.00 | CHANGE | | | 600 | 7200 | |
| 101 | NOT IN SERVICE | 250,000 | 1954 | 35.00 | 36.00 | SCRAP | GRAVER | 1092 | 600 | 7200 | |
| 110 | NOT IN SERVICE | 15,000 | 1964 | 10.50 | 23.20 | UNKNOWN | | | 54 | 650 | |
| 120 | #5 FUEL OIL - WET | 21,300 | 1952 | 11.00 | 30.00 | SAME | | | 58 | 700 | |
| 121 | #5 FUEL OIL - WET | 21,300 | 1952 | 11.00 | 30.00 | SAME | | | 58 | 700 | |
| 122 | #5 FUEL OIL - DRY | 21,300 | 1952 | 11.00 | 30.00 | SAME | | | 58 | 700 | |
| 123 | USED OIL | 21,300 | 1952 | 11.00 | 30.00 | CHANGE | | | 58 | 700 | |
| 124 | USED OIL | 21,300 | 1952 | 11.00 | 30.00 | CHANGE | | | 58 | 700 | |
| 125 | USED OIL | 21,300 | 1952 | 11.00 | 30.00 | CHANGE | | | 58 | 700 | |
| 126 | USED OIL | 21,300 | 1952 | 11.00 | 30.00 | CHANGE | | | 58 | 700 | |
| 127 | USED OIL | 21,300 | 1952 | 11.00 | 30.00 | CHANGE | | | 58 | 700 | |
| 128 | WATER SOLUBLE | 21,300 | 1952 | 11.00 | 30.00 | SAME | | | 58 | 700 | |
| 129 | WATER SOLUBLE | 21,300 | 1952 | 11.00 | 30.00 | SAME | | | 58 | 700 | |
| 130 | USED OIL | 21,300 | 1952 | 11.00 | 30.00 | SAME | | | 58 | 700 | |
| 131 | USED OIL | 21,300 | 1952 | 11.00 | 30.00 | SAME | | | 58 | 700 | |
| 132 | USED OIL | 21,300 | 1952 | 11.00 | 30.00 | SAME | | | 58 | 700 | |
| 133 | USED OIL | 21,300 | 1952 | 11.00 | 30.00 | SAME | | | 58 | 700 | |
| 143 | NOT IN SERVICE | 21,300 | 1969 | 11.00 | 30.00 | CHANGE | IMPERIAL | 7428 | 58 | 700 | |
| 144 | NOT IN SERVICE | 21,300 | 1969 | 11.00 | 30.00 | CHANGE | IMPERIAL | 7428 | 58 | 700 | |
| 145 | #5 FUEL OIL - WET | 21,300 | 1969 | 11.00 | 30.00 | CHANGE | IMPERIAL | 7549 | 58 | 700 | |
| 146 | #5 FUEL OIL - DRY | 21,300 | 1969 | 11.00 | 30.00 | SAME | IMPERIAL | 7549 | 58 | 700 | |
| 201 | FLUSHING OIL | 1,500 | 1962 | 5.00 | 10.20 | SAME | | | 12 | 147 | |
| 204 | NOT IN SERVICE | 2,100 | 1958 | 4.70 | 16.00 | UNKNOWN | | | 11 | 130 | |
| 205 | NOT IN SERVICE | 2,100 | 1958 | 4.70 | 16.00 | UNKNOWN | | | 11 | 130 | |
| 207 | SJR 2000 | 2,750 | 1958 | 5.75 | 14.00 | SAME | | | 16 | 194 | |
| 208 | SJR 2000 | 2,750 | 1958 | 5.75 | 14.00 | UNKNOWN | | | 16 | 194 | |
| 210 | SJR 2000 | 2,750 | 1958 | 5.75 | 14.00 | SAME | | | 16 | 194 | |
| 211 | H CAL 2400 | 2,750 | 1958 | 5.75 | 14.00 | SAME | | | 16 | 194 | |
| 212 | H CAL 2400 | 2,750 | 1958 | 5.75 | 14.00 | SAME | | | 16 | 194 | |
| 213 | ELCO 102 BLEND | 2,750 | 1958 | 5.75 | 14.00 | SAME | | | 16 | 194 | |
| 214 | NIS | 2,750 | 1958 | 5.75 | 14.00 | SAME | | | 16 | 194 | |
| 215 | EXXON 80 NEUTRAL | 2,750 | 1958 | 5.75 | 14.00 | UNKNOWN | | | 16 | 194 | |
| 216 | ELCO 102 BLEND | 2,750 | 1958 | 5.75 | 14.00 | SAME | | | 16 | 194 | |
| 217 | RIGID DARK TANK | 2,750 | 1958 | 5.75 | 14.00 | UNKNOWN | | | 16 | 194 | |
| 237 | INFINEUM 4540 | 6,200 | 1962 | 8.00 | 16.48 | SAME | | | 31.5 | 376 | |
| 238 | IPC 1500 | 6,200 | 1962 | 8.00 | 16.48 | SAME | | | 31.5 | 376 | |
| 240 | SK 150 NEUTRAL | 19,900 | 1962 | 11.00 | 27.20 | CHANGE | | | 58 | 700 | |
| 241 | ORTEK BASE OIL-150 | 10,500 | 1962 | 11.00 | 15.00 | SAME | | | 58 | 700 | |
| 242 | INFINEUM SL P 5066 | 12,000 | 1962 | 11.00 | 17.00 | SAME | | | 58 | 700 | |
| 250 | BLENDING TANK | 7,500 | 1962 | 8.450 | 17.87 | SAME | GRAVER | 46309 | 35 | 420 | |
| 251 | BRANNEN SJ | 6,200 | 1962 | 8.000 | 16.48 | SAME | | | 31.5 | 376 | |
| 252 | IPC 1500 | 10,500 | 1962 | 11.00 | 15.00 | SAME | | | 58 | 700 | |
| 253 | BLEND TANK | 12,000 | 1962 | 11.00 | 17.00 | SAME | | | 58 | 700 | |
| 307 | NOT IN SERVICE | 21,300 | 1969 | 11.00 | 30.00 | SCRAP | | | 58 | 700 | |
| 300 | OUTSIDE FLUSHING OIL | 3,170 | 1964 | 6.00 | 15.00 | SAME | | | 18 | 212 | |
| 310 | ASPHALT | 21,300 | 1969 | 11.00 | 30.00 | SAME | | | 58 | 700 | |
| 316 | T-1/T-2 LIGHT FUEL | 15,500 | 1969 | 10.50 | 24.00 | SAME | | | 54 | 650 | |
| 323 | LIGHT FUEL - API | 21,300 | 1969 | 11.00 | 30.00 | SAME | IMPERIAL | 7427 | 58 | 700 | |
| 324 | OILY WASTE EMULSIONS | 21,300 | 1969 | 11.00 | 30.00 | SAME | IMPERIAL | 7548 | 58 | 700 | |
| 325 | OILY WASTE EMULSIONS | 21,300 | 1969 | 11.00 | 30.00 | CHANGE | IMPERIAL | 7548 | 58 | 700 | |

| | | | | | | | | | | |
|--------|-----------------------|-----------|------|------------|-------|---------|----------|------|------|--------|
| 326 | NOT IN SERVICE | 21,300 | 1969 | 11.00 | 30.00 | CHANGE | | | 58 | 700 |
| 400 | NOT IN SERVICE | 250,000 | 1969 | 35.00 | 36.00 | CHANGE | IMPERIAL | 7304 | 600 | 7200 |
| 402 | ORTEK BASE OIL-150 | 21,300 | 1969 | 11.00 | 30.00 | CHANGE | | | 58 | 700 |
| 403 | USED OIL | 21,300 | 1969 | 11.00 | 30.00 | SAME | | | 58 | 700 |
| 404 | ORTEK BASE OIL-150 | 24,500 | 1976 | 13.00 | 25.75 | CHANGE | | | 83 | 993 |
| 405 | NOT IN SERVICE | 24,500 | 1976 | 13.00 | 25.75 | CHANGE | GRAVER | | 83 | 993 |
| 408 | CONOCO/CITGO LW | 21,300 | 1969 | 11.00 | 30.00 | CHANGE | | | 58 | 700 |
| 409 | USED OIL | 21,300 | 1969 | 11.00 | 30.00 | SAME | | | 58 | 700 |
| 410 | OILY WASTE EMULSIONS | 21,300 | 1965 | 11.00 | 30.00 | CHANGE | | | 58 | 700 |
| 411 | OILY WASTE EMULSIONS | 21,300 | 1965 | 11.00 | 30.00 | CHANGE | | | 58 | 700 |
| 412 | ORTEK BASE OIL-150 | 21,300 | 1969 | 11.00 | 30.00 | SAME | IMPERIAL | 7427 | 58 | 700 |
| 413 | ORTEK BASE OIL-150 | 21,300 | 1969 | 11.00 | 30.00 | CHANGE | | | 58 | 700 |
| 500 | C.S. ADDITIVE | 19,400 | 1964 | 10.50 | 30.00 | CHANGE | | | 54 | 650 |
| 501 | EXXON DILUTE ADDITIVE | 19,400 | 1964 | 10.50 | 30.00 | CHANGE | | | 54 | 650 |
| 502 | MO 1 50 cTs | 19,400 | 1964 | 10.50 | 30.00 | CHANGE | | | 54 | 650 |
| 503 | R&O 46 HAZY | 19,400 | 1964 | 10.50 | 30.00 | CHANGE | | | 54 | 650 |
| 504 | MO 1 418 cTs | 19,400 | 1964 | 10.50 | 30.00 | CHANGE | | | 54 | 650 |
| 505 | H CAL 100 | 21,300 | 1969 | 11.00 | 30.00 | SAME | | | 58 | 700 |
| 506 | H CAL 200 | 21,300 | 1969 | 11.00 | 30.00 | CHANGE | | | 58 | 700 |
| 507 | BASE OIL | 19,400 | 1964 | 10.50 | 30.00 | SAME | | | 54 | 650 |
| 508 | BASE OIL | 19,400 | 1964 | 10.50 | 30.00 | SAME | | | 54 | 650 |
| 509 | BASE OIL | 19,400 | 1964 | 10.50 | 30.00 | SAME | | | 54 | 650 |
| 510 | BLENDED PRODUCT | 14,800 | 1959 | 10.500 | 23.00 | SAME | | | 54 | 650 |
| 511 | BLENDED PRODUCT | 14,800 | 1959 | 10.500 | 23.00 | SAME | | | 54 | 650 |
| 512 | BLENDED PRODUCT | 14,800 | 1959 | 10.500 | 23.00 | SAME | | | 54 | 650 |
| 513 | BLENDED PRODUCT | 14,800 | 1959 | 10.500 | 23.00 | CHANGE | | | 54 | 650 |
| NP 6 | ORTEK BASE OIL-150 | 5,800 | 1972 | 7.750 | 16.30 | UNKNOWN | IMPERIAL | 8465 | 29.5 | 353 |
| NP 7 | ORTEK BASE OIL-150 | 5,800 | 1972 | 7.750 | 16.30 | CHANGE | IMPERIAL | 8466 | 29.5 | 353 |
| DT 40 | NOT IN SERVICE | 5,800 | 1972 | 7.750 | 16.30 | UNKNOWN | IMPERIAL | 8464 | 29.5 | 353 |
| 514 | ALUM | 4,440 | 1991 | 8.000 | 11.83 | SAME | | | 31 | 376 |
| 515 | CAUSTIC - 50% | 4,050 | 1991 | 7.830 | 11.25 | SAME | | | 30 | 360 |
| PH TAN | H2O TREATMENT | 14,540 | 1952 | 15.00 | 11.00 | SAME | | | | |
| DAF | H2O TREATMENT | 12,890 | 1952 | 15.00 | 9.750 | SAME | | | 110 | 1322 |
| API | H2O TREATMENT | 216,000 | 1945 | 8.5 x 16.3 | 105.0 | SAME | | | 2120 | 25,400 |
| 1 TOWE | USED OIL DISTILLATION | 10,600 | 1973 | 9.000 | 20.00 | SAME | | | 40 | 476 |
| 2 TOWE | USED OIL DISTILLATION | 13,380 | 1975 | 10.00 | 20.00 | SAME | | | 49 | 587 |
| 3 TOWE | NOT IN SERVICE | 13,380 | 1975 | 10.00 | 20.00 | UNKNOWN | | | 49 | 587 |
| 4 TOWE | WET OIL DRYING | 13,380 | 1976 | 10.00 | 20.00 | UNKNOWN | | | 49 | 587 |
| 5 TOWE | NOT IN SERVICE | 13,380 | 1976 | 10.00 | 20.00 | SAME | | | 49 | 587 |
| 6 TOWE | NOT IN SERVICE | 13,380 | 1976 | 10.00 | 20.00 | SAME | | | 49 | 587 |
| TOTALS | | 2,531,870 | | | | | | | | |

ATTACHMENT D

WEEKLY FACILITY INSPECTION CHECKLIST

| | |
|------------------|---|
| Date: _____ | X = Satisfactory |
| Time: _____ | NA = Not Applicable |
| Inspector: _____ | 0 = Repair or Adjustment Required |
| | C = Comment under Remarks/Recommendation |
| | |

| DIKES | |
|-------|--|
| | Any noticeable oil on dike floor |
| | Dike walls and floor intact, no cracks, etc. |

| AST's | |
|-------|---|
| | Tank condition good (no noticeable rusting, corrosion, pitting) |
| | Tank foundation intact and no signs of leaks |
| | Level gauges working properly |
| | Vents not obstructed |
| | Valves, flanges, and gaskets free from leaks |

| PIPES | |
|-------|---|
| | No leaks at valves, flanges, or other fittings |
| | No signs of corrosion damage to pipelines or supports |

| SECURITY | |
|----------|------------------|
| | Doors have locks |

| | |
|--|------------------------|
| | Fence and gates intact |
|--|------------------------|

| | |
|----------|--|
| TRAINING | |
| | Training records are in order (monthly check) |
| | Spill prevention briefing held (monthly check) |
| | |

| | |
|----------------------------|--|
| REMARKS / RECOMMENDATIONS: | |
| | |
| | |
| | |
| | |
| | |

ATTACHMENT E

Appendix E

Date: _____

SPCC TRAINING SESSION RECORDS

[illegible]

ATTACHMENT F

Environmental Protection Agency

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received an EPA identification number may obtain one by notifying the Regional Administrator of their used oil activity by submitting either:

(1) A completed EPA Form 8700-12 (To obtain EPA Form 8700-12 call RCRA/Superfund Hotline at 1-800-424-9346 or 703-920-9810); or

(2) A letter requesting an EPA identification number.

Call RCRA/Superfund Hotline to determine where to send a letter requesting an EPA identification number. The letter should include the following information:

(i) Processor or re-refiner company name;

(ii) Owner of the processor or re-refiner company;

(iii) Mailing address for the processor or re-refiner;

(iv) Name and telephone number for the processor or re-refiner point of contact;

(v) Type of used oil activity (i.e., process only, process and re-refine);

(vi) Location of the processor or re-refiner facility.

[57 FR 41612, Sept. 10, 1992, as amended at 58 FR 33342, June 17, 1993]

§ 279.52 General facility standards.

(a) *Preparedness and prevention.* Owners and operators of used oil processing and re-refining facilities must comply with the following requirements:

(1) *Maintenance and operation of facility.* Facilities must be maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of used oil to air, soil, or surface water which could threaten human health or the environment.

(2) *Required equipment.* All facilities must be equipped with the following, unless none of the hazards posed by used oil handled at the facility could require a particular kind of equipment specified in paragraphs (a)(2)(i) through (iv) of this section:

(i) An internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to facility personnel;

(ii) A device, such as a telephone (immediately available at the scene of operations) or a hand-held two-way radio, capable of summoning emergency as-

sistance from local police departments, fire departments, or State or local emergency response teams;

(iii) Portable fire extinguishers, fire control equipment (including special extinguishing equipment, such as that using foam, inert gas, or dry chemicals), spill control equipment and decontamination equipment; and

(iv) Water at adequate volume and pressure to supply water hose streams, or foam producing equipment, or automatic sprinklers, or water spray systems.

(3) *Testing and maintenance of equipment.* All facility communications or alarm systems, fire protection equipment, spill control equipment, and decontamination equipment, where required, must be tested and maintained as necessary to assure its proper operation in time of emergency.

(4) *Access to communications or alarm system.* (i) Whenever used oil is being poured, mixed, spread, or otherwise handled, all personnel involved in the operation must have immediate access to an internal alarm or emergency communication device, either directly or through visual or voice contact with another employee, unless such a device is not required in paragraph (a)(2) of this section.

(ii) If there is ever just one employee on the premises while the facility is operating, the employee must have immediate access to a device, such as a telephone (immediately available at the scene of operation) or a hand-held two-way radio, capable of summoning external emergency assistance, unless such a device is not required in paragraph (a)(2) of this section.

(5) *Required aisle space.* The owner or operator must maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation in an emergency, unless aisle space is not needed for any of these purposes.

(6) *Arrangements with local authorities.* (i) The owner or operator must attempt to make the following arrangements, as appropriate for the type of used oil handled at the facility and the potential need for the services of these organizations:

(A) Arrangements to familiarize police, fire departments, and emergency response teams with the layout of the facility, properties of used oil handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to roads inside the facility, and possible evacuation routes;

(B) Where more than one police and fire department might respond to an emergency, agreements designating primary emergency authority to a specific police and a specific fire department, and agreements with any others to provide support to the primary emergency authority;

(C) Agreements with State emergency response teams, emergency response contractors, and equipment suppliers; and

(D) Arrangements to familiarize local hospitals with the properties of used oil handled at the facility and the types of injuries or illnesses which could result from fires, explosions, or releases at the facility.

(ii) Where State or local authorities decline to enter into such arrangements, the owner or operator must document the refusal in the operating record.

(b) *Contingency plan and emergency procedures.* Owners and operators of used oil processing and re-refining facilities must comply with the following requirements:

(1) *Purpose and implementation of contingency plan.* (i) Each owner or operator must have a contingency plan for the facility. The contingency plan must be designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of used oil to air, soil, or surface water.

(ii) The provisions of the plan must be carried out immediately whenever there is a fire, explosion, or release of used oil which could threaten human health or the environment.

(2) *Content of contingency plan.* (i) The contingency plan must describe the actions facility personnel must take to comply with paragraphs (b) (1) and (6) of this section in response to fires, explosions, or any unplanned sudden or non-sudden release of used oil to air, soil, or surface water at the facility.

(ii) If the owner or operator has already prepared a Spill Prevention, Control, and Countermeasures (SPCC) Plan in accordance with part 112 of this chapter, or part 1510 of chapter V of this title, or some other emergency or contingency plan, the owner or operator need only amend that plan to incorporate used oil management provisions that are sufficient to comply with the requirements of this part.

(iii) The plan must describe arrangements agreed to by local police departments, fire departments, hospitals, contractors, and State and local emergency response teams to coordinate emergency services, pursuant to paragraph (a)(6) of this section.

(iv) The plan must list names, addresses, and phone numbers (office and home) of all persons qualified to act as emergency coordinator (see paragraph (b)(5) of this section), and this list must be kept up to date. Where more than one person is listed, one must be named as primary emergency coordinator and others must be listed in the order in which they will assume responsibility as alternates.

(v) The plan must include a list of all emergency equipment at the facility (such as fire extinguishing systems, spill control equipment, communications and alarm systems (internal and external), and decontamination equipment), where this equipment is required. This list must be kept up to date. In addition, the plan must include the location and a physical description of each item on the list, and a brief outline of its capabilities.

(vi) The plan must include an evacuation plan for facility personnel where there is a possibility that evacuation could be necessary. This plan must describe signal(s) to be used to begin evacuation, evacuation routes, and alternate evacuation routes (in cases where the primary routes could be blocked by releases of used oil or fires).

(3) *Copies of contingency plan.* A copy of the contingency plan and all revisions to the plan must be:

(i) Maintained at the facility; and

(ii) Submitted to all local police departments, fire departments, hospitals, and State and local emergency response teams that may be called upon to provide emergency services.

Environmental Protection Agency

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(4) *Amendment of contingency plan.* The contingency plan must be reviewed, and immediately amended, if necessary, whenever:

- (i) Applicable regulations are revised;
- (ii) The plan fails in an emergency;
- (iii) The facility changes—in its design, construction, operation, maintenance, or other circumstances—in a way that materially increases the potential for fires, explosions, or releases of used oil, or changes the response necessary in an emergency;
- (iv) The list of emergency coordinators changes; or
- (v) The list of emergency equipment changes.

(5) *Emergency coordinator.* At all times, there must be at least one employee either on the facility premises or on call (i.e., available to respond to an emergency by reaching the facility within a short period of time) with the responsibility for coordinating all emergency response measures. This emergency coordinator must be thoroughly familiar with all aspects of the facility's contingency plan, all operations and activities at the facility, the location and characteristic of used oil handled, the location of all records within the facility, and facility layout. In addition, this person must have the authority to commit the resources needed to carry out the contingency plan.

Guidance: The emergency coordinator's responsibilities are more fully spelled out in paragraph (b)(6) of this section. Applicable responsibilities for the emergency coordinator vary, depending on factors such as type and variety of used oil handled by the facility, and type and complexity of the facility.

(6) *Emergency procedures.* (i) Whenever there is an imminent or actual emergency situation, the emergency coordinator (or the designee when the emergency coordinator is on call) must immediately:

(A) Activate internal facility alarms or communication systems, where applicable, to notify all facility personnel; and

(B) Notify appropriate State or local agencies with designated response roles if their help is needed.

(ii) Whenever there is a release, fire, or explosion, the emergency coordinator must immediately identify the character, exact source, amount, and areal extent of any released materials. He may do this by observation or review of facility records or manifests and, if necessary, by chemical analyses.

(iii) Concurrently, the emergency coordinator must assess possible hazards to human health or the environment that may result from the release, fire, or explosion. This assessment must consider both direct and indirect effects of the release, fire, or explosion (e.g., the effects of any toxic, irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface water run-offs from water or chemical agents used to control fire and heat-induced explosions).

(iv) If the emergency coordinator determines that the facility has had a release, fire, or explosion which could threaten human health, or the environment, outside the facility, he must report his findings as follows:

(A) If his assessment indicated that evacuation of local areas may be advisable, he must immediately notify appropriate local authorities. He must be available to help appropriate officials decide whether local areas should be evacuated; and

(B) He must immediately notify either the government official designated as the on-scene coordinator for the geographical area (in the applicable regional contingency plan under part 1510 of this title), or the National Response Center (using their 24-hour toll free number 800/424-8802). The report must include:

(1) Name and telephone number of reporter;

(2) Name and address of facility;

(3) Time and type of incident (e.g., release, fire);

(4) Name and quantity of material(s) involved, to the extent known;

(5) The extent of injuries, if any; and

(6) The possible hazards to human health, or the environment, outside the facility.

(v) During an emergency, the emergency coordinator must take all reasonable measures necessary to ensure that fires, explosions, and releases do

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not occur, recur, or spread to other used oil or hazardous waste at the facility. These measures must include, where applicable, stopping processes and operation, collecting and containing released used oil, and removing or isolating containers.

(vi) If the facility stops operation in response to a fire, explosion, or release, the emergency coordinator must monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever this is appropriate.

(vii) Immediately after an emergency, the emergency coordinator must provide for recycling, storing, or disposing of recovered used oil, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the facility.

(viii) The emergency coordinator must ensure that, in the affected area(s) of the facility:

(A) No waste or used oil that may be incompatible with the released material is recycled, treated, stored, or disposed of until cleanup procedures are completed; and

(B) All emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed.

(C) The owner or operator must notify the Regional Administrator, and appropriate State and local authorities that the facility is in compliance with paragraphs (b)(6)(viii)(A) and (B) of this section before operations are resumed in the affected area(s) of the facility.

(ix) The owner or operator must note in the operating record the time, date and details of any incident that requires implementing the contingency plan. Within 15 days after the incident, he must submit a written report on the incident to the Regional Administrator. The report must include:

(A) Name, address, and telephone number of the owner or operator;

(B) Name, address, and telephone number of the facility;

(C) Date, time, and type of incident (e.g., fire, explosion);

(D) Name and quantity of material(s) involved;

(E) The extent of injuries, if any;

(F) An assessment of actual or potential hazards to human health or the environment, where this is applicable;

(G) Estimated quantity and disposition of recovered material that resulted from the incident.

[57 FR 41612, Sept. 10, 1992, as amended at 58 FR 26426, May 3, 1993; 71 FR 40280, July 14, 2006]

§279.53 Rebuttable presumption for used oil.

(a) To ensure that used oil managed at a processing/re-refining facility is not hazardous waste under the rebuttable presumption of §279.10(b)(1)(ii), the owner or operator of a used oil processing/re-refining facility must determine whether the total halogen content of used oil managed at the facility is above or below 1,000 ppm.

(b) The owner or operator must make this determination by:

(1) Testing the used oil; or

(2) Applying knowledge of the halogen content of the used oil in light of the materials or processes used.

(c) If the used oil contains greater than or equal to 1,000 ppm total halogens, it is presumed to be a hazardous waste because it has been mixed with halogenated hazardous waste listed in subpart D of part 261 of this chapter. The owner or operator may rebut the presumption by demonstrating that the used oil does not contain hazardous waste (for example, by showing that the used oil does not contain significant concentrations of halogenated hazardous constituents listed in appendix VIII of part 261 of this chapter).

(1) The rebuttable presumption does not apply to metalworking oils/fluids containing chlorinated paraffins, if they are processed, through a tolling agreement, to reclaim metalworking oils/fluids. The presumption does apply to metalworking oils/fluids if such oils/fluids are recycled in any other manner, or disposed.

(2) The rebuttable presumption does not apply to used oils contaminated with chlorofluorocarbons (CFCs) removed from refrigeration units where the CFCs are destined for reclamation. The rebuttable presumption does apply to used oils contaminated with CFCs that have been mixed with used oil

ATTACHMENT G

ATTACHMENT H



GOVERNOR'S OFFICE

Pat Quinn, Governor

Office of Emergency Response

Office of Emergency Response (OER)

In case of an emergency call:

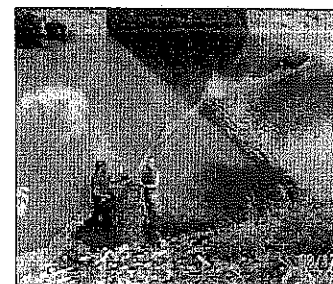
- **Illinois Emergency Management Agency** – (217) 782-7860 or (800) 782-7860 (in Illinois)
Emergency Release Notification Fact Sheet
- The National Response Center – (800) 424-8802
- Illinois Environmental Protection Agency (if the emergency involves the release of potentially hazardous materials to the environment) (217) 782-3637

Non-emergency inquiries or concerns

- Citizen On-line Pollution Complaint Form
- Environmental Helpline – 1-888-EPA-1996 (1-888-372-1996)

Mission of the Office of Emergency Response

Protect the health and safety of the citizens of Illinois during emergency incidents involving the release of oil, hazardous materials or other contaminants, while stabilizing, minimizing or eliminating the environmental consequences to the land, air or waters of the state.



Emergency Operations Unit (EOU)

The Emergency Operations Unit, within OER, coordinates Illinois EPA's response to environmental emergencies involving oil or hazardous materials and ensures that any environmental contamination is cleaned up. EOU works with other response agencies including the Illinois Emergency Management Agency (IEMA), which is the initial contact for responses to an emergency or disaster in Illinois.

See OER's Photos on
Flickr

Emergency Operations Unit

Frequently Asked Questions

Agency Safety Unit

To comply with the Illinois Health and Safety Act, Illinois EPA's Agency Safety

What are the responsibilities

of EOU?

OER responsibilities include:

- Oil and hazardous material spills in water or on land
- Releases of harmful quantities of toxic substances into the air
- Emergencies involving wastewater treatment systems and public water supplies
- Emergencies involving solid waste disposal sites
- Fish kills caused by pollutants
- Abandoned hazardous waste incidents posing immediate hazards
- Illegal burning of waste

Where are EOU personnel?

What assistance is available?

What assistance is not provided?

Unit Illinois EPA conducts the necessary training of all response staff and provides appropriate protective equipment for emergency response actions.

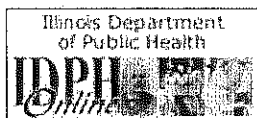
Licensed Industrial Hygienist Program/Training

The Agency Safety Unit (within the Office of Emergency Response) administers the Licensed Industrial Hygienists (LIH) program.

Homeland Security

As a member of the Science Team of the State Weapons of Mass Destruction Team (SWMDT), EOU lends support in responses related to bio-terrorism and hazardous materials. By assessing hazards and associated risks, the Science Team helps ensure the safety of the SWMDT personnel and the general public.

Health-related concerns



Tips on private well safety and maintenance



Tips on steps to take during an emergency



EMERGENCY RELEASE NOTIFICATION FACT SHEET

- A. Immediate telephone notification shall be given by the owner or operator of a facility when a release equal to or exceeding the reportable quantity of an extremely hazardous substance¹ or a CERCLA hazardous substance² occurs at the facility.**

In such incidents, notifications are to be made to the following:

- 1. Illinois Emergency Management Agency (IEMA)/State Emergency Response Commission (SERC) at 1-800-782-7860 (within state) or (217) 782-7860 (when calling from out-of-state);**
- 2. Local Emergency Planning Committee (LEPC) that is likely to be affected by the release. The telephone number(s) can be obtained from IEMA;**
- 3. National Response Center (NRC) at 1-800-424-8802 (if the substance is a CERCLA hazardous substance).**

Please Note: Transportation-related incidents only require 9-1-1 notification.

- B. Immediate telephone notification is also required if an incident or accident involving a hazardous material³ occurs which results in:**

- 1) a member of the general public is killed;
- 2) a member of the general public receives injuries requiring hospitalization;
- 3) an authorized official of an emergency agency recommends an evacuation of an area by the general public;
- 4) a motor vehicle has overturned on a public highway;
- 5) Fire, breakage, release or suspected contamination occurs involving an etiologic agent;
- 6) Any release of petroleum (or oil) that produces a sheen on nearby surface water⁴ and/or threatens navigable waters;
- 7) Any spill or overfill of petroleum that results in a release to the environment that exceeds 25 gallons.⁴

In such incidents, notification shall be made as noted in Paragraph A, above, except no notification is required to the NRC, except items 6 and 7 (oil that impacts water and overfills).

At a minimum, notification shall include:

- 1) the chemical name or identity of any substance involved in the release;
- 2) an indication of whether the substance is an extremely hazardous substance;
- 3) an estimate of the quantity in pounds of any such substance that was released into the environment;
- 4) the time and duration of the release;
- 5) the specific location of the release;
- 6) the medium or media (air, land, water) into which the release occurred;
- 7) any known or anticipated acute or chronic health risks associated with the emergency and, where appropriate, advice regarding medical attention necessary for exposed individuals;
- 8) proper precautions to take as a result of the release, including evacuations;
- 9) the name and telephone number of the person or persons to be contacted for further information.

WRITTEN FOLLOW-UP NOTICE IS REQUIRED WITH RESPECT TO INCIDENTS AS DESCRIBED IN PARAGRAPH A, ABOVE. As soon as practicable after such release (within 30 days), the owner or operator shall provide a written follow-up emergency notice (or notices, as more information becomes available) to the SERC and the LEPC, updating the information provided in the immediate notification and including additional information with respect to:

- 1) Actions taken to respond to and contain the release;**
- 2) Any known or anticipated acute or chronic health risks associated with the release;**
- 3) Where appropriate, advice regarding medical attention necessary for exposed individuals.**

¹ See 40 CFR 355 for a listing of extremely hazardous substances (EHS)

² See 40 CFR 302.4 for a listing of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) hazardous substances

³ See 49 CFR 172.101 for a list of hazardous materials

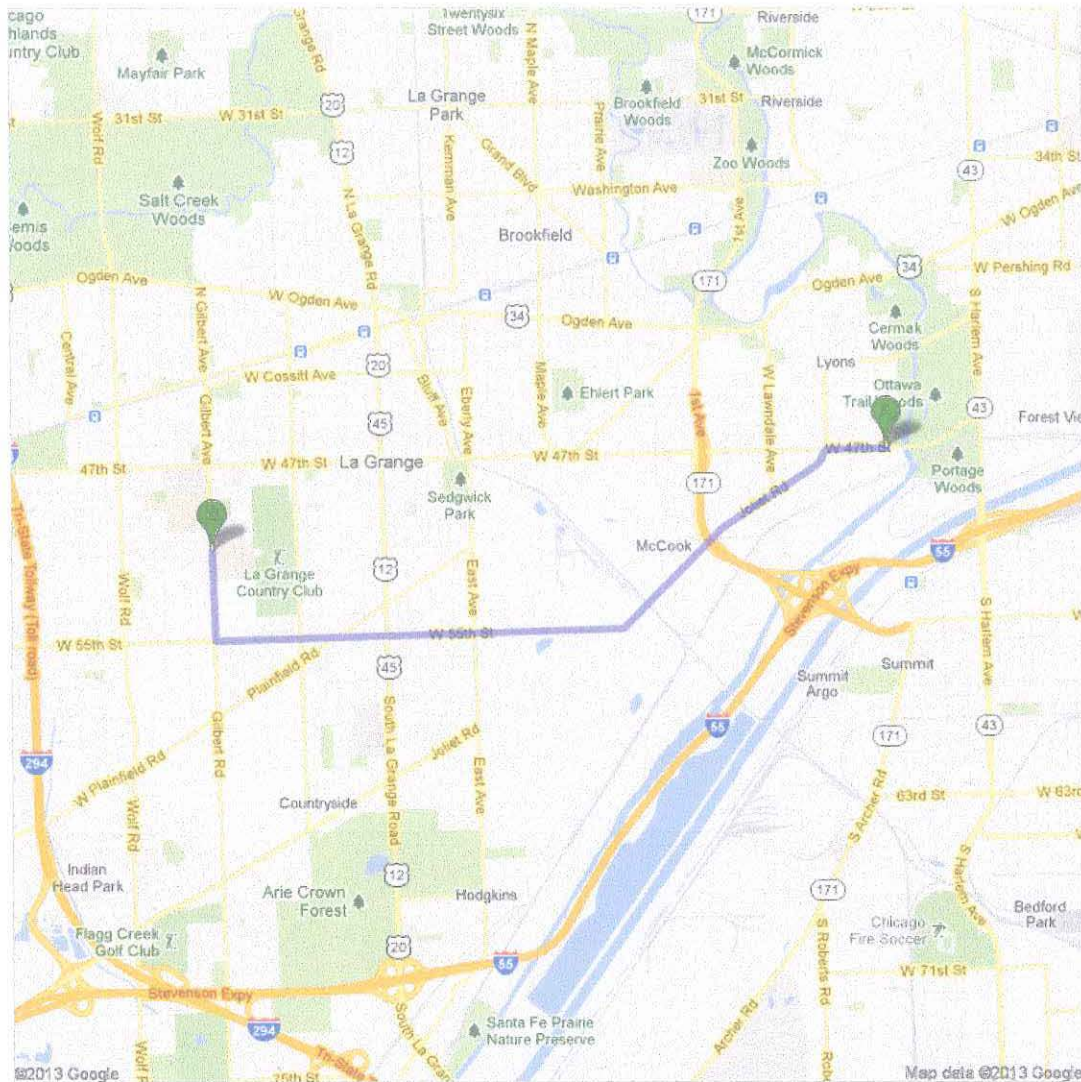
⁴ See 41 IAC 176.340 Reporting and Cleanup of Spills and Overfills

(These rules are compiled in 29 IAC 430 and 29 IAC 620)

Last Updated 2/2011

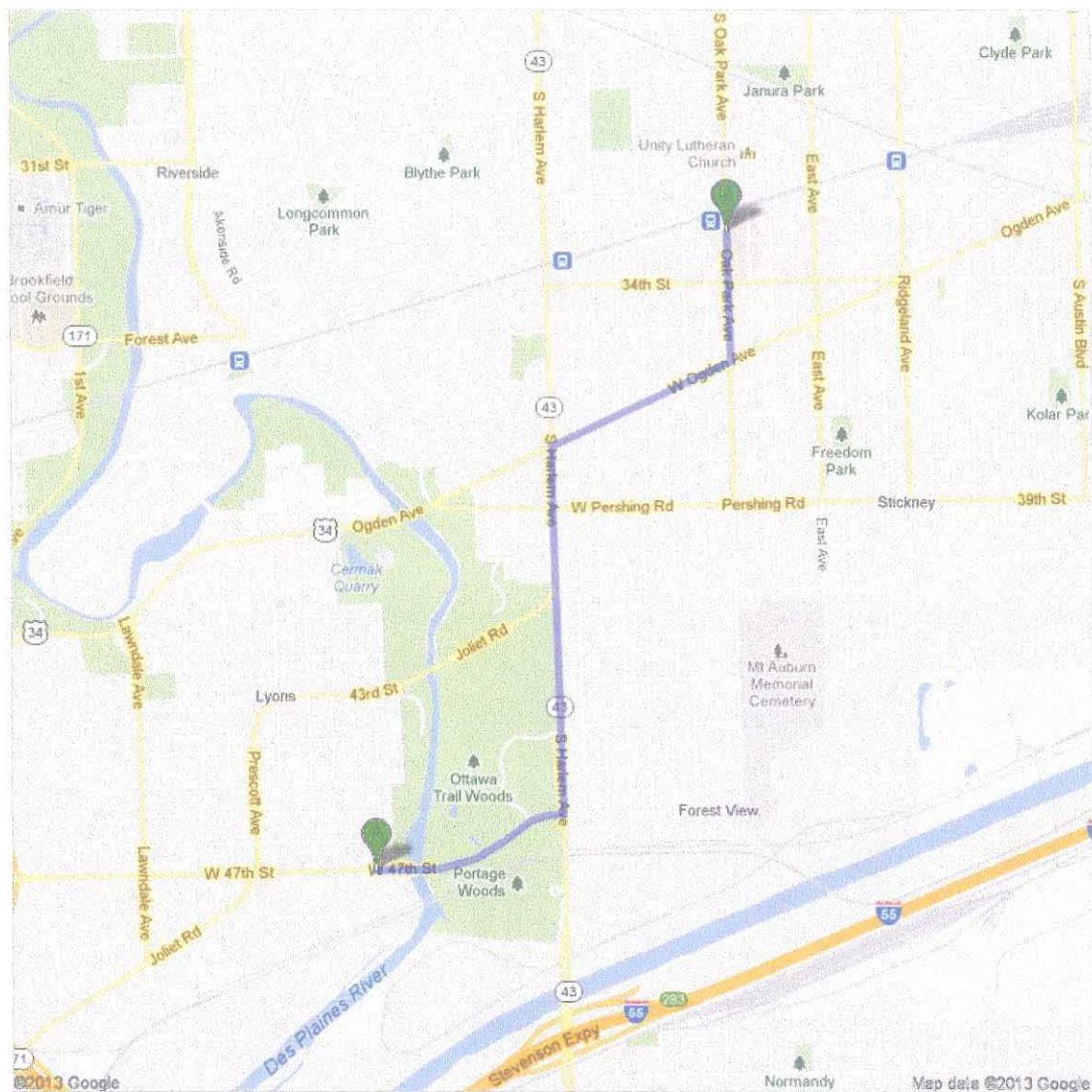


ATTACHMENT I



Driving directions to Lagrange Hospital 5101 Willow Springs Rd, La Grange, IL 60525

1. Head **west** on **W 47th St** toward **Center Ave** 0.3 mi
2. Take the 1st left onto **Joliet Rd** 1.6 mi
3. Continue onto **W 55th St** 2.4 mi
4. Turn right onto **Gilbert Rd/Willow Springs Rd**
Destination will be on the right 0.5 mi
5101 Willow Springs Rd La Grange, IL 60525



1. From Ortek Head **east** on **W 47th St** toward **Salt Creek Greenway**
About 55 secs go 0.6 mi total 0.6 mi
2. Turn left onto **IL-43 N/S Harlem Ave** About 3 mins
3. Turn right onto **W Ogden Ave** About 2 mins
4. Turn left onto **S Oak Park Ave**
Destination will be on the right About 2 mins

VANGUARD MCNEAL HOSPITAL
3249 Oak Park Ave, Berwyn, IL 60402

ORTEK, INC.

Recycling for Tomorrow's Future

June 25, 2013

Dear Brian:

Please find enclosed the Modifications to the "Outgoing On-Spec Used Oil Analysis Plan" and the Method 8082A.

This will be "Appendix C" to our Waste Analysis Plan.

Thank you for your patience,

Laurie Witter

enclosures

♦ 7601 West 47th Street

♦ McCook, Illinois 60525

♦ (708) 762-5117

♦ (708) 762-5118 Fax

Contract or Outside (Independent) Laboratory Analysis:

ORTEK WAP outside lab work June 2013 revision Microsoft Word.doc

Ortek has historically and is projected to continue to use outside (or independent) laboratories for analyses of used oil/fuel, anti-freeze, and/or oily-water streams/samples. Many times people will hand us laboratory analysis of potential samples/streams that have come from Outside (or independent laboratories). Therefore, this section will attempt to cover some of the basics of outside laboratory use, test methods, and results as it applies to our business.

Analysis of used oil as “on-spec” (when burned for Energy Recovery)

Ortek, Inc., being a re-refiner of used oils, competes with fuel marketers to obtain used oil for the re-refinery and generally we are not in the business of buying or selling of used oils for or as “fuel” (in other words, we are not in the business of being a “fuel marketer”). On occasion, however, Ortek may sell used oils/fuels (possibly, for example, material that would not make good feed-stock for our re-refinery process) or we may even sell finished re-refined products or by-products into the fuel market. Ortek has historically “processed”, treated, or dried, for example, customer’s used oil streams destined to be burned for energy recovery. *If Ortek is to sell any used oil into the fuel market, such oil must be sampled to determine that it is “on-spec”.* Ortek will sample and analyze any used oil prior to being sold into the fuel market, if we are the owner/seller of the used oil. In addition, it is important for us to be knowledgeable of the fuel market and laboratory analyses requirements thereof to help keep us and/or our customers in compliance with applicable regulations. **The words; “On-spec” or “off-spec” used oils (generally refer to “used oil fuel specifications” as set forth in 40 CFR 279.11).**

The following (**Table 1**) has been taken from 40-CFR-279.11 which shows the allowable limit(s) if the used oil is to be burned for Energy Recovery:

| Constituent/Property | Allowable Level (not to be exceeded) |
|----------------------|---------------------------------------|
| ARSENIC | 5 ppm |
| CADMIUM | 2 ppm |
| CHROMIUM | 10 ppm |
| LEAD | 100 ppm |
| FLASH POINT | 100 °F (minimum) |
| TOTAL HALOGENS | 1000 ppm / 4000 ppm (max if rebutted) |
| PCBS | see 40-CFR-761.20(e) |

- 1) **Metals (Inorganics)**; the first four constituents listed on the above table, i.e., Arsenic (As), Cadmium(Cd), Chromium(Cr), and Lead(Pb) are often referred to as “Metals” or “Inorganics”. These four Constituents certainly do not make-up all the Metals or inorganics that exist in the world however; they are probably four of the nastiest (potentially more harmful constituents) that may be found in used oils. Metal levels found above those listed in Table 1 above are generally considered HAZARDOUS WASTE. High metals found in used oils, may indicate a metal working operation (e.g. metal plating operation), or even “wear-metals” from the insides of an engine, where motor oil (used oil) is doing its job to keep that engine going, but bearings and other internal metal parts are breaking down (wearing) and being taken into the motor oil. Sludges from Oil pans and/or Oil filters, or used oil derived from oil filters is/are becoming more

regulated and may contain even a higher concentration of “metals”. Metals, being heavier than oil and based on gravity separation, will tend (or try) to accumulate\concentrate at the bottom of any sample, tank, or truck (especially over time).

Ortek and/or any Outside Laboratory may analyze for these four parameters by either “Total” or “TCLP” Methods. “Total” Methods are generally cheaper (and quicker) to have analyzed at the lab. “EPA Method” or “SW-846” **Method 6010** seems to be the most widely used Method in our business. Ortek recommends using Method 6020 or 7060 for Arsenic, especially if analyzing **glycol streams**. In addition, should any of these four Metals be found to be above the allowable limits listed above on a “Total” basis, one may have the option to re-run the constituent parameter under a TCLP Method.

Please note that USEPA funded testing has shown that elevated Arsenic levels are often found when running Method 6010 in used or spent oily glycol/antifreeze streams/samples (USEPA Region 7 Grant X-98748101-0, e.g., www.iwrc.org/IWRC/index.cfm/services/past-services/small-business-pollution-prevention-center-sbppc/waste-analysis-for-auto-dealerships/). In this study the University of Northern Iowa found that Arsenic levels were commonly too high (thus Hazardous Waste) in a large portion of antifreeze/glycols streams when using Method 6010. Similar to their study, Ortek has found glycol after glycol stream (even products – sometimes virgin antifreezes currently sold at Wal-Mart) to be “HAZARDOUS WASTE” by not passing the Arsenic 5.0ppm limit. Under this USEPA granted study, whenever glycols were analyzed under Method 6010, they often flunked the Arsenic limit of 5.0 ppm, however, when the same sample glycol materials were sampled under Methods 6020 and/or 7060, they passed. In fact, under this study, all 74 samples of glycol passed the arsenic limit of 5.0 ppm when using **method 7060**, 2 samples flunked under **method 6020**, and 17 samples flunked under Method 6010. Ortek has not funded, researched / studied and/or compared these various Methods (and the results thereof) when analyzing used oils only and arsenic levels.

It is interesting that by one Method a sample could be over the limit (Hazardous or out-of-compliance for us?), and yet by another Laboratory Method under the limit (in-spec)! Also, please note that Used Oil, historically, was often included as “HAZARDOUS WASTE” as it often flunked the TCLP limits per 40 CFR for the lead RCRA limit of 5.0 ppm, for example. However, in an effort to encourage the management and reuse of used oils as non-hazardous, the lead limit for used oils was raised to 100 ppm (versus 5.0 ppm elsewhere), and used oils generally became non-hazardous. Used oils were later given their own special rules/regulations/guidelines to ENCOURAGE recycling, better/cheaper disposal, and so forth. Used oil has become more of a commodity (or fuel) and traded and sold as such. The thought was that if regulated as a hazardous waste (expensive to deal with), and as common as used oil is, do-it-yourselfers and/or small businesses, and other were more likely perhaps to dispose of such materials to the ground, down drains, the toilets, rivers, ditches, abandoned wells, etcetera.

FLASH POINT (Ignitability)

Flash Point or Ignitability testing may be done at Ortek’s on-site laboratory or completed by an independent (outside) laboratory. Ortek uses the “Pensky-Martens Closed Cup (PMCC) Method” for flash point (ignitability) determination. SW-846 refers to this Method as Method 1010 or now 1010a (revised 1010). The American Society for Testing and Materials (ASTM) did much work to develop and standardize

this Method, which they refer to as ASTM Method D93. There are several other flash point (ignitability) Methods and procedures, however, Method 1010A seems to be the most widely used Method in our business and it is recommended to use this Method when contracting with an outside independent laboratory to complete this test. Per Illinois and US EPA regulations, or per Table No. 1 above, Flash Point has to be 100°F or higher if any used oil/fuel is to be used for energy consumption\recovery (e.g. used in the fuel market).

Ortek has developed a very quick and simple indication of flash (or ignitability) to quickly scan samples within our laboratory. Not to replace the PMCC Method, but just as an initial/quick indications of whether water and/or oil or other samples "flash". This in-house method calls for taking a few drops of the sample via eye dropper or syringe, place a drop or so on a safe surface in a safe area, and seeing if the material flashes to open flame. This method is safely carried out, mainly because it is only a drop or so, but if we see the material readily flash to open flame (e.g. from a bic lighter or bbq style lighter), we have found that there is a very good chance that the material is going to flunk the 100°F PMCC limit.

In our industry, fuel marketers have often told us that everything (i.e., fuels) can be diluted if, for example, any constituent is/was too high to be considered "on-spec". Although this notion is probably breaking the RCRA (Hazardous Waste) Mixing rules, we mention it here only because, we have also heard it said that Flash Point can-NOT be diluted??? We are not convinced this is entirely true, however be aware that gasoline, solvents, or some other flammable material(s) that may have been inadvertently or purposely mixed into any used oil we may sample, are much more likely to flash at lower temperatures and thus be more dangerous to handle!

TOTAL HALOGENS (a.k.a Total Chlorine, Total Chlorides, Halides, Salts)

Ortek may complete sample testing in-house or via independent (outside) laboratory analysis of Total Halogens (or Total Chlorides) as shown in Table No. 1 above. In the Used Oil / Fuel business, Method 9075 (i.e., Test Method for Total Chlorine in new and used Petroleum Products by X-Ray Fluorescence Spectrometry – XRF; a.k.a. = Oxford testing machine) is probably the most commonly used laboratory Method when testing for Total Halogens. "Total Halogens" or Halides collectively means all the elements including Fluorine, Chlorine, Bromine, Iodine, and Astatine (off the "Halogen" column from the Chemical/Elemental Periodic Table). The terms "Total Halogens" and/or "Total Chlorine" are often referred in the business to mean the same thing (even though they are not). Historically, many Chlorinated Solvents (e.g., degreasers) were found to be carcinogenic and often wound-up mixed with used oils (e.g., brake-cleaner). A used oil sample/stream is presumed to be HAZARDOUS if the total Halogen or total Chlorine content is over 1000-ppm (up to 4000 ppm if rebutted whereby no individual chlorinated solvent is found to be over 100 ppm).

Method 9075 is relatively inexpensive laboratory Method, and Ortek will often have this Method completed by and independent laboratory, if for no other reason than to compare to Ortek's in-house testing. As stated, Ortek's laboratory is capable of analyzing samples by this method, and we can analyze oil and/or water based streams, as an indicator, although this Method specifies under part 6.4 of the procedure that "Free Water, as a separate phase, should be removed and cannot be analyzed by this method" while Section 3 of this Method discusses interferences as a result of water. Ortek understands that the Method is/was designed for Petroleum Products

(such as Used oil), and that any sample showing results that exceed 1000 ppm by this Method are presumed to be Hazardous Waste until/unless rebutted by showing no individual chlorinated solvent (for example) to be equal to or greater than 100-ppm and/or by generator knowledge and/or tolling arrangements for some metal-working oils. Method 9075 is incorporated in Ortek's Waste Analysis Plan (WAP) under Attachment A.

One is also referred to the following section that discusses PCB laboratory testing/Method(s), where it is further discussed and noted that Dexsil Corporation does make total chlorine test or field kits (e.g. SW-846, Method 9077 – Test Method for Total Chlorine in New and Used Petroleum Products ...).

PCBs

The **Laboratory Method** most commonly utilized in our line of business appears to be **Method 8082 or 8082a**. This Method per SW-846 has been included into Ortek's WAP under Appendix C. Method 8082 detects the presence of PCBs, and/or PCB Congeners (some mixture with some form of PCBs in it) by Gas Chromatogram (GC) technology. Probably the most common trade-name for PCBs is Aroclor, and laboratories will commonly scan for various forms/formulas of Aroclor. Historically, Ortek has seen Aroclor 1248 and/or 1260 to be the two most common PCBs found in waste oil samples.

Other Methods for the detection of PCBs do exist, but will not discuss or list them herein. Ortek will note however that the Dexsil Corporation provides numerous PCB test kits (and/or field kits) that were originally designed to detect PCBs in cleaner transformer oils (rather than dirty and/or wet waste oil). Dexsil Corporation can also supply Chlorine (total Chlorine) test kits. SW-846 Method 9077, for example, is a Test Method (field test kit) for Total Chlorine in new and used petroleum products (e.g. the CHLOR-D-TECT 1000 test kit). Many in our industry use the Dexsil test kits for total chlorine and/or PCB testing. The kits generally just tell you if you have over or under 1000-ppm total chlorine, for example, or say 50-ppm PCBs. Ortek has utilized these kits and find that they are useful for say relatively quick PCB testing, however, in the past we have experience some "false positives", that is, the kit told us that PCBs existed, when they in fact did not (it is reported that if water is present in an oil/fuel sample, this may cause a false positive). We are not aware of any false negatives (that is, saying no PCBs exist, even when they do), but in wet, dark, dirty waste oil, this possibility may exist (where low concentrations of PCBs may be masked/hidden)??? Ortek generally does NOT rely on the Dexsil kits exclusively for quantitative or qualitative analyses of PCBs!

High levels of Poly-Chlorinated BiPhenyls (PCBs) once wound-up in some cooking oil in Japan (I believe in the early 1970's) and killed several Japanese people. This was a wake-up call for the rest of us and Congress banned the production of PCBs in the U.S. in 1979. Studies of PCBs has shown that they "bio-accumulate" and are generally considered persistent (don't degrade very well with time). In America, they were being found, for example, in the fat of cat-fish (bottom feeders), and subsequently found in people eating the cat-fish (bio-accumulating). Ortek employees have experienced PCBs to concentrate in oils (or accumulate) at the bottom of tanks, samples, or trucks over time. PCBs were also being found in Cow's milk (the fat of the milk), and subsequently in those who drank the milk (e.g. children). PCBs had a great ability to resist heat and electrical conductivity, and thus were widely used in automotive coils for

example, and electrical transformers often seen atop telephone or electrical poles. Many transformers still to this day will have certification stickers on the outside of them certifying that the transformer oil contained within is less than 50 ppm PCBs. Years ago, PCBs often got mixed into or somehow found their way into used oil (or fuel) streams. Today, Ortek rarely sees PCBs (or we tend to see them at very low levels), especially as compared to say 30-years ago. However, in late 1995, one or two 55-gallon drums (reportedly) got pumped out of Argonne National Labs into a used oil stream by a ChicagoLand Waste Oil collector/transporter, and delivered to the Ortek facility (the Ortek facility or our predecessor was known as Enviropur, Inc., at that time). With poor isolation by Enviropur and poor detection and slow methods by the laboratory, the resulting PCB contamination at this site, caused nearly everyone (~ 95%) to lose their jobs, millions of dollars in clean-up, USEPA involvement, and bankruptcy of Enviropur. PCBs are mainly regulated under 40-CFR 761 (TSCA), and/or the State's regulations equivalent to these federal regulations.

Other Laboratory Testing

Many other laboratory tests can be (and often are) conducted on used oil samples, especially when destined for the fuel market. Independent testing (or in-house) testing, for example of; a) Ash content, b) energy value ~ BTU (energy per pound or per gallon), c) BS&W (bottom sediment and water) and/or water content, and d) sulfur content, e) distillation testing, and e) many other tests are often conducted. We have mentioned only a small number of additional tests that can be done, however it is noted that most/many, if not all of these tests are not necessarily required under RCRA/Used Oil (or Fuel Burning) regulations. They are discussed here just because we should at least be aware of such testing as they can help us and/or others gain additional knowledge of any used oil sample/stream:

BS&W: Ortek was designed and built as a liquid (used oil) handling facility, and is not really designed to handle solids, especially if a liquid stream contains higher levels of "solids". Therefore, Bottom-Sediment and Water (BS&W) by centrifugal analysis is recommended to be run on every incoming waste stream. As you know this test is useful to see solid/liquid phases, even separation of liquid-liquid phases such as oil and water. Because the Ortek facility was not designed or set-up to handle/process "solids", several potential streams each year are "rejected" from the facility if an inbound truck is found to exhibit a significant amount of solids in the bottom portions of the truck's storage tanker, for example. In this case, BS&W may not even be run, and the truck rejected, due simply based on the visual high degree of solids in the load/sample/stream. The term "solids" (anything not liquid?) can include a wide variety of materials, but in our business we are accustomed to seeing, dirt/soil, clay, rocks, gravel, nuts and bolts, metal shavings, and so forth. "Solids" tend to be heavier than oil (but not necessarily) and thus tend to congregate to the bottom of any tank, sample, or load, especially given time (gravity separation). Cigarette butts, "floc", charged tiny clay particles (or colloidal particles), or waste plastic molding pellets for example, however, may float, or exist anywhere within the sample. In many other cases, where an oily-water sample is quite clean (and with no soaps/surfactants/emulsifiers in the mix), such streams can often be seen to be clearly phase separated very quickly within a transport truck or sample jar for example whereby the BS&W can be fairly accurately estimated visually or measured within (or outside of) the truck, tank or sample jar (e.g. 95% water, <2% solids, 3% oil). The centrifuge apparatus utilized in the BS&W method magnifies gravity and helps to pull the solids to the bottom of the sample and separate liquid phases (such as water and oil), making it more accurate to show the percentages of each, and gives one a look at how that sample is likely to separate on its own over time (within your tank?!).

METHOD 8082A

POLYCHLORINATED BIPHENYLS (PCBs) BY GAS CHROMATOGRAPHY

SW-846 is not intended to be an analytical training manual. Therefore, method procedures are written based on the assumption that they will be followed by individuals formally trained in at least the basic principles of chemical analysis and in the use of the subject technology.

In addition, SW-846 methods, with the exception of required method use for the analysis of method-defined parameters, are intended to be methods which contain general information on how to perform an analytical procedure or technique which a laboratory can use as a basic starting point for generating its own detailed standard operating procedure (SOP), either for its own general use or for a specific project application. The performance data included in this method are for guidance purposes only, and are not intended to be and must not be used as absolute QC acceptance criteria for purposes of laboratory accreditation.

1.0 SCOPE AND APPLICATION

1.1 This method may be used to determine the concentrations of polychlorinated biphenyls (PCBs) as Aroclors or as individual PCB congeners in extracts from solid, tissue, and aqueous matrices, using open-tubular, capillary columns with electron capture detectors (ECD) or electrolytic conductivity detectors (ELCD). The Aroclors and PCB congeners listed below have been determined by this method, using either a single- or dual column analysis system, and this method may be appropriate for additional congeners and Aroclors (see Sec. 1.4). The method also may be applied to other matrices such as oils and wipe samples, if appropriate sample extraction procedures are employed.

| Compound | CAS Registry No. ^a | IUPAC # |
|-----------------------------------|-------------------------------|---------|
| Aroclor 1016 | 12674-11-2 | - |
| Aroclor 1221 | 11104-28-2 | - |
| Aroclor 1232 | 11141-16-5 | - |
| Aroclor 1242 | 53469-21-9 | - |
| Aroclor 1248 | 12672-29-6 | - |
| Aroclor 1254 | 11097-69-1 | - |
| Aroclor 1260 | 11096-82-5 | - |
| 2-Chlorobiphenyl | 2051-60-7 | 1 |
| 2,3-Dichlorobiphenyl | 16605-91-7 | 5 |
| 2,2',5-Trichlorobiphenyl | 37680-65-2 | 18 |
| 2,4',5-Trichlorobiphenyl | 16606-02-3 | 31 |
| 2,2',3,5'-Tetrachlorobiphenyl | 41464-39-5 | 44 |
| 2,2',5,5'-Tetrachlorobiphenyl | 35693-99-3 | 52 |
| 2,3',4,4'-Tetrachlorobiphenyl | 32598-10-0 | 66 |
| 2,2',3,4,5'-Pentachlorobiphenyl | 38380-02-8 | 87 |
| 2,2',4,5,5'-Pentachlorobiphenyl | 37680-73-2 | 101 |
| 2,3,3',4',6-Pentachlorobiphenyl | 38380-03-9 | 110 |
| 2,2',3,4,4',5'-Hexachlorobiphenyl | 35065-28-2 | 138 |
| 2,2',3,4,5,5'-Hexachlorobiphenyl | 52712-04-6 | 141 |

| Compound | CAS Registry No. ^a | IUPAC # |
|--|-------------------------------|---------|
| 2,2',3,5,5',6-Hexachlorobiphenyl | 52663-63-5 | 151 |
| 2,2',4,4',5,5'-Hexachlorobiphenyl | 35065-27-1 | 153 |
| 2,2',3,3',4,4',5-Heptachlorobiphenyl | 35065-30-6 | 170 |
| 2,2',3,4,4',5,5'-Heptachlorobiphenyl | 35065-29-3 | 180 |
| 2,2',3,4,4',5,6-Heptachlorobiphenyl | 52663-69-1 | 183 |
| 2,2',3,4',5,5',6-Heptachlorobiphenyl | 52663-68-0 | 187 |
| 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl | 40186-72-9 | 206 |

^aChemical Abstract Service Registry No.

1.2 Aroclors are multi-component mixtures. When samples contain more than one Aroclor, a higher level of analyst expertise is required to attain acceptable levels of qualitative and quantitative analysis. The same is true of Aroclors that have been subjected to environmental degradation ("weathering") or degradation by treatment technologies. Such weathered multi-component mixtures may have significant differences in peak patterns compared to those of Aroclor standards.

1.3 The seven Aroclors listed in Sec. 1.1 are those that are commonly specified in EPA regulations. The quantitation of PCBs as Aroclors is appropriate for many regulatory compliance determinations, but is particularly difficult when the Aroclors have been weathered by long exposure in the environment. Therefore, this method provides procedures for the determination of a selected group of the 209 possible PCB congeners, as another means to measure the concentrations of weathered Aroclors. The 19 PCB congeners listed above have been tested by this method and were chosen for testing because many of them represent congeners specific to the common Aroclor formulations (see Table 6). These 19 PCB congeners do not represent the co-planar PCBs or the other PCBs of greatest toxicological significance. **The analytical procedures for these 19 congeners may be appropriate for the analysis of other congeners not specifically included in this method and may be used as a template for the development of such a procedure.** However, all 209 PCB congeners cannot be separated using the GC columns and procedures described in this method. If this procedure is expanded to encompass other congeners, then the analyst must either document the resolution of the congeners in question, or establish procedures for reporting the results of coeluting congeners that are appropriate for the intended application.

1.4 The PCB congener approach potentially affords greater quantitative accuracy when PCBs are known to be present. As a result, this method may be used to determine Aroclors, some PCB congeners, or "total PCBs," depending on regulatory requirements and project needs. The congener method is of particular value in determining weathered Aroclors. However, analysts should use caution when using the congener method when regulatory requirements are based on Aroclor concentrations. Also, this method is not appropriate as currently written for the determination of the co-planar PCB congeners at the very low (sub part per trillion) concentrations sometimes needed for risk assessment purposes.

1.5 Compound identification based on single-column analysis should be confirmed on a second column, or should be supported by at least one other qualitative technique. This method describes analytical conditions for a second gas chromatographic column that can be used to confirm the measurements made with the primary column. GC/MS (e.g., Method 8270) is also recommended as a confirmation technique, if sensitivity permits (also see Sec. 11.11 of this method). GC/AED may also be used as a confirmation technique, if sensitivity permits (see Method 8085).

1.6 This method includes a dual-column option that describes a hardware configuration in which two GC columns are connected to a single injection port and to two separate detectors. The option allows one injection to be used for dual-column simultaneous analysis.

1.7 The analyst must select columns, detectors and calibration procedures most appropriate for the specific analytes of interest in a study. Matrix-specific performance data must be established and the stability of the analytical system and instrument calibration must be established for each analytical matrix (e.g., hexane solutions from sample extractions, diluted oil samples, etc.). Example chromatograms and GC conditions are provided as guidance.

1.8 Prior to employing this method, analysts are advised to consult the base method for each type of procedure that may be employed in the overall analysis (e.g., Methods 3500, 3600, and 8000) for additional information on quality control procedures, development of QC acceptance criteria, calculations, and general guidance. Analysts also should consult the disclaimer statement at the front of the manual and the information in Chapter Two for guidance on the intended flexibility in the choice of methods, apparatus, materials, reagents, and supplies, and on the responsibilities of the analyst for demonstrating that the techniques employed are appropriate for the analytes of interest, in the matrix of interest, and at the levels of concern.

In addition, analysts and data users are advised that, except where explicitly specified in a regulation, the use of SW-846 methods is *not* mandatory in response to Federal testing requirements. The information contained in this method is provided by EPA as guidance to be used by the analyst and the regulated community in making judgments necessary to generate results that meet the data quality objectives for the intended application.

1.9 Use of this method is restricted to use by, or under the supervision of, personnel appropriately experienced and trained in the use of gas chromatographs (GCs) and skilled in the interpretation of gas chromatograms. Each analyst must demonstrate the ability to generate acceptable results with this method.

2.0 SUMMARY OF METHOD

2.1 A measured volume or weight of sample is extracted using the appropriate matrix-specific sample extraction technique.

2.1.1 Aqueous samples may be extracted at neutral pH with methylene chloride using either Method 3510 (separatory funnel), Method 3520 (continuous liquid-liquid extractor), Method 3535 (solid-phase extraction), or other appropriate technique or solvents.

2.1.2 Solid samples may be extracted with hexane-acetone (1:1) or methylene chloride-acetone (1:1) using Method 3540 (Soxhlet), Method 3541 (automated Soxhlet), Method 3545 (pressurized fluid extraction), Method 3546 (microwave extraction), Method 3550 (ultrasonic extraction), Method 3562 (supercritical fluid extraction), or other appropriate technique or solvents.

2.1.3 Tissue samples may be extracted using Method 3562 (supercritical fluid extraction), or other appropriate technique. The extraction techniques for other solid matrices (see Sec. 2.1.2) may be appropriate for tissue samples.

2.2 Extracts for PCB analysis may be subjected to a sequential sulfuric acid/potassium permanganate cleanup (Method 3665) designed specifically for these analytes. This cleanup technique will remove (destroy) many single component organochlorine or organophosphorus pesticides. Therefore, this method is not applicable to the analysis of those compounds. Instead, use Method 8081.

2.3 After cleanup, the extract is analyzed by injecting a measured aliquot into a gas chromatograph equipped with either a narrow- or wide-bore fused-silica capillary column and either an electron capture detector (GC/ECD) or an electrolytic conductivity detector (GC/ELCD).

2.4 The chromatographic data may be used to determine the seven Aroclors in Sec. 1.1, selected individual PCB congeners, or total PCBs (see Secs. 11.8 and 11.9).

3.0 DEFINITIONS

Refer to Chapter One and the manufacturer's instructions for definitions that may be relevant to this procedure.

4.0 INTERFERENCES

4.1 Solvents, reagents, glassware, and other sample processing hardware may yield artifacts and/or interferences to sample analysis. All of these materials must be demonstrated to be free from interferences under the conditions of the analysis by analyzing method blanks. Specific selection of reagents and purification of solvents by distillation in all-glass systems may be necessary. Refer to each method to be used for specific guidance on quality control procedures and to Chapter Four for general guidance on the cleaning of glassware. Also refer to Methods 3500, 3600, and 8000 for a discussion of interferences.

4.2 Interferences co-extracted from the samples will vary considerably from matrix to matrix. While general cleanup techniques are referenced or provided as part of this method, unique samples may require additional cleanup approaches to achieve desired degrees of discrimination and quantitation. Sources of interference in this method can be grouped into four broad categories, as follows:

4.2.1 Contaminated solvents, reagents, or sample processing hardware.

4.2.2 Contaminated GC carrier gas, parts, column surfaces, or detector surfaces.

4.2.3 Compounds extracted from the sample matrix to which the detector will respond, such as single-component chlorinated pesticides, including the DDT analogs (DDT, DDE, and DDD).

NOTE: A standard of the DDT analogs should be injected to determine which of the PCB or Aroclor peaks may be subject to interferences on the analytical columns used. There may be substantial DDT interference with the last major Aroclor 1254 peak in some soil and sediment samples.

4.2.4 Coelution of related analytes -- All 209 PCB congeners cannot be separated using the GC columns and procedures described in this method. If this procedure is expanded to encompass other congeners, then the analyst must either

document the resolution of the congeners in question or establish procedures for reporting the results of coeluting congeners that are appropriate for the intended application.

4.3 Interferences by phthalate esters introduced during sample preparation can pose a major problem in PCB determinations. Interferences from phthalate esters can best be minimized by avoiding contact with any plastic materials and checking all solvents and reagents for phthalate contamination.

4.3.1 Common flexible plastics contain varying amounts of phthalate esters which are easily extracted or leached from such materials during laboratory operations.

4.3.2 Exhaustive cleanup of solvents, reagents and glassware may be required to eliminate background phthalate ester contamination.

4.3.3 These materials can be removed prior to analysis using Method 3665 (sulfuric acid/permanganate cleanup).

4.4 Cross-contamination of clean glassware can routinely occur when plastics are handled during extraction steps, especially when solvent-wetted surfaces are handled. Glassware must be scrupulously cleaned.

4.4.1 Clean all glassware as soon as possible after use by rinsing with the last solvent used. This should be followed by detergent washing with hot water, and rinses with tap water and organic-free reagent water. Drain the glassware, and dry it in an oven at 130 °C for several hours, or rinse with methanol and drain. Store dry glassware in a clean environment.

CAUTION: Oven-drying of glassware used for PCB analysis can increase contamination because PCBs are readily volatilized in the oven and spread to other glassware. Therefore, exercise caution, and do not dry glassware from samples containing high concentrations of PCBs with glassware that may be used for trace analyses.

4.4.2 Other appropriate glassware cleaning procedures may be employed, such as using a muffle furnace at 430 °C for at least 30 min. However, analysts are advised not to place volumetric glassware in a muffle furnace, since the heat will burn off the markings on the glassware and may warp the glassware, changing its volume.

4.5 Sulfur (S_8) is readily extracted from soil samples and may cause chromatographic interferences in the determination of PCBs. Sulfur contamination should be expected with sediment samples. Sulfur can be removed through the use of Method 3660.

5.0 SAFETY

This method does not address all safety issues associated with its use. The laboratory is responsible for maintaining a safe work environment and a current awareness file of OSHA regulations regarding the safe handling of the chemicals listed in this method. A reference file of material safety data sheets (MSDSs) should be available to all personnel involved in these analyses.

6.0 EQUIPMENT AND SUPPLIES

The mention of trade names or commercial products in this manual is for illustrative purposes only, and does not constitute an EPA endorsement or exclusive recommendation for use. The products and instrument settings cited in SW-846 methods represent those products and settings used during method development or subsequently evaluated by the Agency. Glassware, reagents, supplies, equipment, and settings other than those listed in this manual may be employed provided that method performance appropriate for the intended application has been demonstrated and documented.

This section does not list common laboratory glassware (e.g., beakers and flasks).

6.1 Gas chromatograph -- An analytical system complete with gas chromatograph suitable for on-column and split-splitless injection and all necessary accessories including syringes, analytical columns, gases, electron capture detectors (ECD), and recorder/integrator or data system. Electrolytic conductivity detectors (ELCDs) may also be employed if appropriate for project needs. If the dual-column option is employed, the gas chromatograph must be equipped with two separate detectors.

6.2 GC columns

This method describes procedures for both single-column and dual-column analyses. The single-column approach involves one analysis to determine that a compound is present, followed by a second analysis to confirm the identity of the compound (Sec. 11.11 describes how GC/MS confirmation techniques may be employed). The single-column approach may employ either narrow-bore (≤ 0.32 -mm ID) columns or wide-bore (0.53-mm ID) columns. The dual-column approach generally employs a single injection that is split between two columns that are mounted in a single gas chromatograph. The dual-column approach generally employs wide-bore (0.53-mm ID) columns, but columns of other diameters may be employed if the analyst can demonstrate and document acceptable performance for the intended application. A third alternative is to employ dual columns mounted in a single GC, but with each column connected to a separate injector and a separate detector.

The columns listed in this section were the columns used in developing the method. The listing of these columns in this method is not intended to exclude the use of other columns that are available or that may be developed. Laboratories may use these columns or other columns provided that the laboratories document method performance data (e.g., chromatographic resolution, analyte breakdown, and sensitivity) that are appropriate for the intended application.

6.2.1 Narrow-bore columns for single-column analysis (use both columns to confirm compound identifications unless another confirmation technique such as GC/MS is employed). Narrow-bore columns should be installed in split/splitless (Grob-type) injectors.

6.2.1.1 30-m x 0.25-mm or 0.32-mm ID fused-silica capillary column chemically bonded with SE-54 (DB-5 or equivalent), 1- μ m film thickness.

6.2.1.2 30-m x 0.25-mm ID fused-silica capillary column chemically bonded with 35 percent phenyl methylpolysiloxane (DB-608, SPB-608, or equivalent), 2.5 μ m coating thickness, 1- μ m film thickness.

6.2.2 Wide-bore columns for single-column analysis (use two of the three columns listed to confirm compound identifications unless another confirmation technique

such as GC/MS is employed). Wide-bore columns should be installed in 1/4-inch injectors, with deactivated liners designed specifically for use with these columns.

6.2.2.1 30-m x 0.53-mm ID fused-silica capillary column chemically bonded with 35 percent phenyl methylpolysiloxane (DB-608, SPB-608, RTx-35, or equivalent), 0.5- μ m or 0.83- μ m film thickness.

6.2.2.2 30-m x 0.53-mm ID fused-silica capillary column chemically bonded with 14% cyanopropylmethylpolysiloxane (DB-1701, or equivalent), 1.0- μ m film thickness.

6.2.2.3 30-m x 0.53-mm ID fused-silica capillary column chemically bonded with SE-54 (DB-5, SPB-5, RTx-5, or equivalent), 1.5- μ m film thickness.

6.2.3 Wide-bore columns for dual-column analysis -- The three pairs of recommended columns are listed below.

6.2.3.1 Column pair 1

30-m x 0.53-mm ID fused-silica capillary column chemically bonded with SE-54 (DB-5, SPB-5, RTx-5, or equivalent), 1.5- μ m film thickness.

30-m x 0.53-mm ID fused-silica capillary column chemically bonded with 14% cyanopropylmethylpolysiloxane (DB-1701, or equivalent), 1.0- μ m film thickness.

Column pair 1 is mounted in a press-fit Y-shaped glass 3-way union splitter (J&W Scientific, Catalog No. 705-0733) or a Y-shaped fused-silica connector (Restek, Catalog No. 20405), or equivalent.

NOTE: When connecting columns to a press-fit Y-shaped connector, a better seal may be achieved by first soaking the ends of the capillary columns in alcohol for about 10 sec to soften the polyimide coating.

6.2.3.2 Column pair 2

30-m x 0.53-mm ID fused-silica capillary column chemically bonded with SE-54 (DB-5, SPB-5, RTx-5, or equivalent), 0.83- μ m film thickness.

30-m x 0.53-mm ID fused-silica capillary column chemically bonded with 14% cyanopropylmethylpolysiloxane (DB-1701, or equivalent), 1.0- μ m film thickness.

Column pair 2 is mounted in an 8-in. deactivated glass injection tee (Supelco, Catalog No. 2-3665M), or equivalent.

6.2.3.3 Column pair 3

30-m x 0.53-mm ID fused-silica capillary column chemically bonded with SE-54 (DB-5, SPB-5, RTx-5, or equivalent), 1.5- μ m film thickness.

30-m x 0.53-mm ID fused-silica capillary column chemically bonded with 35 percent phenyl methylpolysiloxane (HP-608, DB-608, SPB-608, RTx-35, or equivalent), 0.5- μ m film thickness.

Column pair 3 is mounted in separate injectors and separate detectors.

6.3 Column rinsing kit -- Bonded-phase column rinse kit (J&W Scientific, Catalog No. 430-3000), or equivalent.

6.4 Volumetric flasks -- 10-mL and 25-mL, for preparation of standards.

6.5 Analytical balance, capable of weighing to 0.0001 g.

7.0 REAGENTS AND STANDARDS.

7.1 Reagent-grade or pesticide-grade chemicals must be used in all tests. Unless otherwise indicated, it is intended that all reagents conform to specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available. Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination. Reagents should be stored in glass to prevent the leaching of contaminants from plastic containers.

NOTE: Store the standard solutions (stock, composite, calibration, internal, and surrogate) at $\leq 6^{\circ}\text{C}$ in polytetrafluoroethylene (PTFE)-sealed containers in the dark. When a lot of standards is prepared, aliquots of that lot should be stored in individual small vials. All stock standard solutions must be replaced after one year, or sooner if routine QC (see Sec. 9.0) indicates a problem. All other standard solutions must be replaced after six months, or sooner if routine QC (see Sec. 9.0) indicates a problem.

7.2 Solvents used in the extraction and cleanup procedures (appropriate 3500 and 3600 series methods) include *n*-hexane, diethyl ether, methylene chloride, acetone, ethyl acetate, and isooctane (2,2,4-trimethylpentane) and the solvents must be exchanged to *n*-hexane or isooctane prior to analysis. Therefore, *n*-hexane and isooctane will be required in this procedure. All solvents should be pesticide grade in quality or equivalent, and each lot of solvent should be determined to be free of phthalates.

7.3 The following solvents may be necessary for the preparation of standards. All solvent lots must be pesticide grade in quality or equivalent and should be determined to be free of phthalates.

7.3.1 Acetone, $(\text{CH}_3)_2\text{CO}$

7.3.2 Toluene, $\text{C}_6\text{H}_5\text{CH}_3$

7.4 Organic-free reagent water -- All references to water in this method refer to organic-free reagent water as defined in Chapter One.

7.5 Standard solutions

The following sections describe the preparation of stock, intermediate, and working standards for the compounds of interest. This discussion is provided as an example, and other approaches and concentrations of the target compounds may be used, as appropriate for the intended application. See Method 8000 for additional information on the preparation of calibration standards.

7.6 Stock standard solutions (1000 mg/L) -- May be prepared from pure standard materials or can be purchased as certified solutions.

7.6.1 Prepare stock standard solutions by accurately weighing 0.0100 g of pure compound. Dissolve the compound in isooctane or hexane and dilute to volume in a 10-mL volumetric flask. If compound purity is 96 percent or greater, the weight can be used without correction to calculate the concentration of the stock standard solution.

7.6.2 Commercially-prepared stock standard solutions may be used at any concentration if they are certified by the manufacturer or by an independent source.

7.7 Calibration standards for Aroclors

7.7.1 A standard containing a mixture of Aroclor 1016 and Aroclor 1260 will include many of the peaks represented in the other five Aroclor mixtures. As a result, a multi-point initial calibration employing a mixture of Aroclors 1016 and 1260 at five concentrations should be sufficient to demonstrate the linearity of the detector response without the necessity of performing multi-point initial calibrations for each of the seven Aroclors. In addition, such a mixture can be used as a standard to demonstrate that a sample does not contain peaks that represent any one of the Aroclors. This standard can also be used to determine the concentrations of either Aroclor 1016 or Aroclor 1260, should they be present in a sample.

Prepare a minimum of five calibration standards containing equal concentrations of both Aroclor 1016 and Aroclor 1260 by dilution of the stock standard with isooctane or hexane. The concentrations should correspond to the expected range of concentrations found in real samples and should bracket the linear range of the detector. See Method 8000 for additional information regarding the preparation of calibration standards.

7.7.2 Single standards of each of the other five Aroclors are required to aid the analyst in pattern recognition. Assuming that the Aroclor 1016/1260 standards described in Sec. 7.7.1 have been used to demonstrate the linearity of the detector, these single standards of the remaining five Aroclors also may be used to determine the calibration factor for each Aroclor when a linear calibration model through the origin is chosen (see Sec. 11.4). Prepare a standard for each of the other Aroclors. The concentrations should generally correspond to the mid-point of the linear range of the detector, but lower concentrations may be employed at the discretion of the analyst based on project requirements.

7.7.3 Other standards (e.g., other Aroclors) and other calibration approaches (e.g., non-linear calibration for individual Aroclors) may be employed to meet project needs. When the nature of the PCB contamination is already known, use standards of those particular Aroclors. See Method 8000 for information on non-linear calibration approaches.

7.8 Calibration standards for PCB congeners

7.8.1 If results are to be determined for individual PCB congeners, then standards for the pure congeners must be prepared. The table in Sec. 1.1 lists 19 PCB congeners that have been tested by this method along with the IUPAC numbers designating these congeners. This procedure may be appropriate for other congeners as well, but the analyst must either document the resolution of the congeners in question or establish procedures for reporting the results of coeluting congeners that are appropriate for the intended application.

7.8.2 Stock standards may be prepared in a fashion similar to that described for the Aroclor standards, or may be purchased as commercially-prepared solutions. Stock standards should be used to prepare a minimum of five concentrations by dilution of the stock standard with isooctane or hexane. The concentrations should correspond to the expected range of concentrations found in real samples and should bracket the linear range of the detector.

7.9 Internal standard

7.9.1 When PCB congeners are to be determined, the use of an internal standard is highly recommended. Decachlorobiphenyl may be used as an internal standard, added to each sample extract prior to analysis, and included in each of the initial calibration standards.

7.9.2 When PCBs are to be determined as Aroclors, an internal standard is typically not used, and decachlorobiphenyl is employed as a surrogate (see Sec. 7.10).

7.9.3 When decachlorobiphenyl is an analyte of interest, as in some PCB congener analyses, see Sec. 7.10.3.

7.10 Surrogate standards

The performance of the method should be monitored using surrogate compounds. Surrogate standards are added to all samples, method blanks, matrix spikes, and calibration standards. The choice of surrogate compounds will depend on analysis mode chosen, e.g., Aroclors or congeners. The following compounds are recommended as surrogates. Other surrogates may be used, provided that the analyst can demonstrate and document performance appropriate for the data quality needs of the particular application.

7.10.1 When PCBs are to be determined as Aroclors, decachlorobiphenyl may be used as a surrogate, and is added to each sample prior to extraction. Prepare a solution of decachlorobiphenyl in acetone. The recommended spiking solution concentration is 5 mg/L. Tetrachloro-*m*-xylene also may be used as a surrogate for Aroclor analysis. If used, the recommended spiking solution concentration is 5 mg/L in acetone. (Other surrogate concentrations may be used, as appropriate for the intended application.)

7.10.2 When PCB congeners are to be determined, decachlorobiphenyl is recommended for use as an internal standard, and therefore it cannot also be used as a surrogate. Tetrachloro-*m*-xylene may be used as a surrogate for PCB congener analysis. The recommended spiking solution concentration is 5 mg/L in acetone. (Other surrogate concentrations may be used, as appropriate for the intended application.)

7.10.3 If decachlorobiphenyl is a target congener for the analysis, 2,2',4,4',5,5'-hexabromobiphenyl may be used as an internal standard or a surrogate.

7.11 DDT analog standard -- Used to determine if the commonly found DDT analogs (DDT, DDE, and DDD) elute at the same retention times as any of the target analytes (congeners or Aroclors). A single standard containing all three compounds should be sufficient. The concentration of the standard is left to the judgement of the analyst.

8.0 SAMPLE COLLECTION, PRESERVATION, AND STORAGE

8.1 See the introductory material to Chapter Four, "Organic Analytes."

8.2 Extracts should be stored under refrigeration in the dark and should be analyzed within 40 days of extraction.

NOTE: The holding time above is a recommendation. PCBs are very stable in a variety of matrices, and holding times under the conditions listed above may be as long as a year.

9.0 QUALITY CONTROL

9.1 Refer to Chapter One for guidance on quality assurance (QA) and quality control (QC) protocols. When inconsistencies exist between QC guidelines, method-specific QC criteria take precedence over both technique-specific criteria and those criteria given in Chapter One, and technique-specific QC criteria take precedence over the criteria in Chapter One. Any effort involving the collection of analytical data should include development of a structured and systematic planning document, such as a Quality Assurance Project Plan (QAPP) or a Sampling and Analysis Plan (SAP), which translates project objectives and specifications into directions for those that will implement the project and assess the results. Each laboratory should maintain a formal quality assurance program. The laboratory should also maintain records to document the quality of the data generated. All data sheets and quality control data should be maintained for reference or inspection.

9.2 Refer to Method 8000 for specific determinative method QC procedures. Refer to Method 3500 for QC procedures to ensure the proper operation of the various sample preparation techniques. If an extract cleanup procedure is performed, refer to Method 3600 for the appropriate QC procedures. Any more specific QC procedures provided in this method will supersede those noted in Methods 8000, 3500, or 3600.

9.3 Quality control procedures necessary to evaluate the GC system operation are found in Method 8000 and include evaluation of retention time windows, calibration verification and chromatographic analysis of samples.

9.3.1 Include a calibration standard after each group of 20 samples (it is *recommended* that a calibration standard be included after every 10 samples to minimize the number of repeat injections) in the analysis sequence as a calibration check. Thus, injections of method blank extracts, matrix spike samples, and other non-standards are counted in the total. Solvent blanks, injected as a check on cross-contamination, need not be counted in the total. The response factors for the calibration should be within ± 20 percent of the initial calibration (see Sec. 11.6.2). When this continuing calibration is out of this acceptance window, the laboratory should stop analyses and take corrective action.

9.3.2 Whenever quantitation is accomplished using an internal standard, internal standards must be evaluated for acceptance. The measured area of the internal standard must be no more than 50 percent different from the average area calculated during initial calibration. When the internal standard peak area is outside the limit, all samples that fall outside the QC criteria must be reanalyzed. The retention times of the internal standards must also be evaluated. A retention time shift of >30 sec necessitates reanalysis of the affected sample.

9.4 Initial demonstration of proficiency

9.4.1 Each laboratory must demonstrate initial proficiency with each sample preparation and determinative method combination it utilizes, by generating data of acceptable accuracy and precision for target analytes in a clean matrix. If an autosampler is used to perform sample dilutions, before using the autosampler to dilute samples, the laboratory should satisfy itself that those dilutions are of equivalent or better accuracy than is achieved by an experienced analyst performing manual dilutions. The laboratory must also repeat the demonstration of proficiency whenever new staff members are trained or significant changes in instrumentation are made. See Method 8000 for information on how to accomplish a demonstration of proficiency.

9.4.2 It is suggested that the QC reference sample concentrate (as discussed in Methods 8000 and Method 3500) contain PCBs as Aroclors at 10-50 mg/L in the concentrate for water samples, or PCBs as congeners at the same concentrations. A 1-mL volume of this concentrate spiked into 1 L of reagent water will result in a sample concentration of 10-50 µg/L. If Aroclors are not expected in samples from a particular source, then prepare the QC reference samples with a mixture of Aroclors 1016 and 1260. However, when specific Aroclors are known to be present or expected in samples, the specific Aroclors should be used for the QC reference sample. See Method 8000 for additional information on how to accomplish this demonstration. Other concentrations may be used, as appropriate for the intended application.

9.4.3 Calculate the average recovery and the standard deviation of the recoveries of the analytes in each of the four QC reference samples. Refer to Method 8000 for procedures for evaluating method performance.

9.5 Initially, before processing any samples, the analyst should demonstrate that all parts of the equipment in contact with the sample and reagents are interference-free. This is accomplished through the analysis of a method blank. As a continuing check, each time samples are extracted, cleaned up, and analyzed, and when there is a change in reagents, a method blank should be prepared and analyzed for the compounds of interest as a safeguard against chronic laboratory contamination. If a peak is observed within the retention time window of any analyte that would prevent the determination of that analyte, determine the source and eliminate it, if possible, before processing the samples. The blanks should be carried through all stages of sample preparation and analysis. When new reagents or chemicals are received, the laboratory should monitor the preparation and/or analysis blanks associated with samples for any signs of contamination. It is not necessary to test every new batch of reagents or chemicals prior to sample preparation if the source shows no prior problems. However, if reagents are changed during a preparation batch, separate blanks need to be prepared for each set of reagents.

9.6 Sample quality control for preparation and analysis

The laboratory must also have procedures for documenting the effect of the matrix on method performance (precision, accuracy, method sensitivity). At a minimum, this should include the analysis of QC samples including a method blank, a matrix spike, a duplicate, and a laboratory control sample (LCS) in each analytical batch and the addition of surrogates to each field sample and QC sample when surrogates are used. Any method blanks, matrix spike samples, and replicate samples should be subjected to the same analytical procedures (Sec. 11.0) as those used on actual samples.

9.6.1 Documenting the effect of the matrix should include the analysis of at least one matrix spike and one duplicate unspiked sample or one matrix spike/matrix spike

duplicate pair. The decision on whether to prepare and analyze duplicate samples or a matrix spike/matrix spike duplicate must be based on a knowledge of the samples in the sample batch. If samples are expected to contain target analytes, then laboratories may use one matrix spike and a duplicate analysis of an unspiked field sample. If samples are not expected to contain target analytes, the laboratories should use a matrix spike and matrix spike duplicate pair, spiked with the Aroclor 1016/1260 mixture. However, when specific Aroclors are known to be present or expected in samples, the specific Aroclors should be used for spiking. Consult Method 8000 for information on developing acceptance criteria for the MS/MSD.

9.6.2 A laboratory control sample (LCS) should be included with each analytical batch. The LCS consists of an aliquot of a clean (control) matrix similar to the sample matrix and of the same weight or volume. The LCS is spiked with the same analytes at the same concentrations as the matrix spike, when appropriate. When the results of the matrix spike analysis indicate a potential problem due to the sample matrix itself, the LCS results are used to verify that the laboratory can perform the analysis in a clean matrix. Consult Method 8000 for information on developing acceptance criteria for the LCS.

9.6.3 Also see Method 8000 for the details on carrying out sample quality control procedures for preparation and analysis. In-house acceptance criteria for evaluating method performance should be developed using the guidance found in Method 8000.

9.7 Surrogate recoveries

If surrogates are used, the laboratory should evaluate surrogate recovery data from individual samples versus the surrogate control limits developed by the laboratory. See Method 8000 for information on evaluating surrogate data and developing and updating surrogate limits. Procedures for evaluating the recoveries of multiple surrogates and the associated corrective actions should be defined in an approved project plan.

9.8 It is recommended that the laboratory adopt additional quality assurance practices for use with this method. The specific practices that are most productive depend upon the needs of the laboratory and the nature of the samples. Whenever possible, the laboratory should analyze standard reference materials and participate in relevant performance evaluation studies.

10.0 CALIBRATION AND STANDARDIZATION

See Sec. 11.0 for information on calibration and standardization.

11.0 PROCEDURE

11.1 Sample extraction

11.1.1 Refer to Chapter Two and Method 3500 for guidance in choosing the appropriate extraction procedure. In general, water samples are extracted at a neutral pH with methylene chloride using a separatory funnel (Method 3510), a continuous liquid-liquid extractor (Method 3520), solid-phase extraction (Method 3535), or other appropriate technique. Solid samples are extracted with hexane-acetone (1:1) or methylene chloride-acetone (1:1) using one of the Soxhlet extraction methods (Method 3540 or 3541), pressurized fluid extraction (Method 3545), microwave extraction (Method 3546),

ultrasonic extraction (Method 3550), supercritical fluid extraction (Method 3562), or other appropriate technique or solvents. Tissue samples are extracted using supercritical fluid extraction (Method 3562) or other appropriate technique.

NOTE: The use of hexane-acetone generally reduces the amount of interferences that are extracted and improves signal-to-noise.

The choice of extraction solvent and procedure will depend on the analytes of interest. No single solvent or extraction procedure is universally applicable to all analyte groups and sample matrices. The analyst *must* demonstrate adequate performance for the analytes of interest, at the levels of interest, for any solvent system and extraction procedure employed, *including* those specifically listed in this method. At a minimum, such a demonstration will encompass the initial demonstration of proficiency described in Method 3500, using a clean reference matrix. Each new sample type must be spiked with the compounds of interest to determine the percent recovery. Method 8000 describes procedures that may be used to develop performance criteria for such demonstrations as well as for matrix spike and laboratory control sample results.

11.1.2 Reference materials, field-contaminated samples, or spiked samples should be used to verify the applicability of the selected extraction technique to each new sample type. Such samples should contain or be spiked with the compounds of interest in order to determine the percent recovery and the limit of detection for that sample type (see Chapter One). When other materials are not available and spiked samples are used, they should be spiked with the analytes of interest, either specific Aroclors or PCB congeners. When the presence of specific Aroclors is not anticipated, the Aroclor 1016/1260 mixture may be an appropriate choice for spiking. See Methods 3500 and 8000 for guidance on demonstration of initial method proficiency as well as guidance on matrix spikes for routine sample analysis.

11.1.3 The extraction techniques for solids may be applicable to wipe samples and other sample matrices not addressed in Sec. 11.1.1. The analysis of oil samples may need special sample preparation procedures that are not described here. Analysts should follow the steps described in Sec. 11.1.2 to verify the applicability of the sample preparation and extraction techniques for matrices such as wipes and oils.

11.2 Extract cleanup

Cleanup procedures may not be necessary for a relatively clean sample matrix, but most extracts from environmental and waste samples will require additional preparation before analysis. The specific cleanup procedure used will depend on the nature of the sample to be analyzed and the data quality objectives for the measurements. Refer to Methods 3600, 3660 and 3665 for general guidance on extract cleanup.

11.3 GC conditions

This method allows the analyst to choose between a single-column or a dual-column configuration in the injector port. The columns listed in this section were the columns used to develop the method performance data. Listing these columns in this method is not intended to exclude the use of other columns that are available or that may be developed. Wide-bore or narrow-bore columns may be used with either option. Laboratories may use either the columns listed in this method or other capillary columns or columns of other dimensions, provided that the laboratories document method performance data (e.g., chromatographic resolution, analyte breakdown, and sensitivity) that are appropriate for the intended application.

11.3.1 Single-column analysis

This capillary GC/ECD method allows the analyst the option of using 0.25-mm or 0.32-mm ID capillary columns (narrow-bore) or 0.53-mm ID capillary columns (wide-bore). Narrow-bore columns generally provide greater chromatographic resolution than wide-bore columns, although narrow-bore columns have a lower sample capacity. As a result, narrow-bore columns may be more suitable for relatively clean samples or for extracts that have been prepared with one or more of the clean-up options referenced in the method. Wide-bore columns (0.53-mm ID) may be more suitable for more complex environmental and waste matrices. However, the choice of the appropriate column diameter is left to the professional judgement of the analyst.

11.3.2 Dual-column analysis

The dual-column/dual-detector approach recommends the use of two 30-m x 0.53-mm ID fused-silica open-tubular columns of different polarities, thus, different selectivities towards the target analytes. The columns may be connected to an injection tee and separate electron capture detectors, or to both separate injectors and separate detectors. However, the choice of the appropriate column dimensions is left to the professional judgement of the analyst.

11.3.3 GC temperature programs and flow rates

11.3.3.1 Table 1 lists suggested GC operating conditions for the analysis of PCBs as Aroclors for single-column analysis, using either narrow-bore or wide-bore capillary columns. Table 2 lists suggested GC operating conditions for the dual-column analysis. Use the conditions in these tables as guidance and establish the GC temperature program and flow rate necessary to separate the analytes of interest.

11.3.3.2 When determining PCBs as congeners, difficulties may be encountered with coelution of congener 153 and other sample components. When determining PCBs as Aroclors, chromatographic conditions should be adjusted to give adequate separation of the characteristic peaks in each Aroclor (see Sec. 11.4.6).

11.3.3.3 Tables 3 and 4 summarize example retention times of up to 73 Aroclor peaks determined during dual-column analysis using the operating conditions listed in Table 2. These retention times are provided as guidance as to what may be achieved using the GC columns, temperature programs, and flow rates described in this method. Each laboratory must determine retention times and retention time windows for their specific application of the method. Note that the peak numbers used in these tables are *not* the IUPAC congener numbers, but represent the elution order of the peaks on these GC columns.

11.3.3.4 Once established, the same operating conditions must be used for the analysis of samples and standards.

11.4 Calibration

11.4.1 Prepare calibration standards using the procedures in Sec. 7.0. Refer to Method 8000 and Sec. 9.3 for proper calibration techniques for both initial calibration and calibration verification. When PCBs are to be determined as congeners, the use of internal standard calibration is highly recommended. Therefore, the calibration standards

must contain the internal standard (see Sec. 7.9) at the same concentration as the sample extracts. When PCBs are to be determined as Aroclors, external standard calibration is generally used.

NOTE: Because of the sensitivity of the electron capture detector, always clean the injection port and column prior to performing the initial calibration.

11.4.2 When PCBs are to be quantitatively determined as congeners, an initial multi-point calibration must be performed that includes standards for all the target analytes (congeners). See Method 8000 for details on calibration options.

11.4.3 When PCBs are to be quantitatively determined as Aroclors, the initial calibration consists of two parts, described below.

11.4.3.1 As noted in Sec. 7.7.1, a standard containing a mixture of Aroclor 1016 and Aroclor 1260 will include many of the peaks represented in the other five Aroclor mixtures. Thus, such a standard may be used to demonstrate the linearity of the detector and that a sample does not contain peaks that represent any one of the Aroclors. This standard can also be used to determine the concentrations of either Aroclor 1016 or Aroclor 1260, should they be present in a sample. Therefore, an initial multi-point calibration is performed using the mixture of Aroclors 1016 and 1260 described in Sec. 7.7.1. See Method 8000 for guidance on the use of linear and non-linear calibrations.

11.4.3.2 Standards of the other five Aroclors are necessary for pattern recognition. When employing the traditional model of a linear calibration through the origin, these standards are also used to determine a single-point calibration factor for each Aroclor, assuming that the Aroclor 1016/1260 mixture in Sec. 11.4.3.1 has been used to describe the detector response. The standards for these five Aroclors should be analyzed before the analysis of any samples, and may be analyzed before or after the analysis of the five 1016/1260 standards in Sec. 11.4.3.1. For non-linear calibrations, see Sec. 11.4.3.3.

11.4.3.3 In situations where only a few Aroclors are of interest for a specific project, the analyst may employ a multi-point initial calibration of each of the Aroclors of interest (e.g., five standards of Aroclor 1232 if this Aroclor is of concern and linear calibration is employed) and not use the 1016/1260 mixture described in Sec. 11.4.3.1 or the pattern recognition standards described in 11.4.3.2. When non-linear calibration models are employed, more than five standards of each Aroclor of interest will be needed to adequately describe the detector response (see Method 8000).

11.4.4 Establish the GC operating conditions appropriate for the configuration (single-column or dual column, Sec. 11.3), using Tables 1 or 2 as guidance. Optimize the instrumental conditions for resolution of the target compounds and sensitivity. A final temperature of between 240 °C and 275 °C may be needed to elute decachlorobiphenyl. The use of injector pressure programming will improve the chromatography of late eluting peaks.

NOTE: Once established, the same operating conditions must be used for both calibrations and sample analyses.

11.4.5 A 2- μ L injection of each calibration standard is recommended. Other injection volumes may be employed, provided that the analyst can demonstrate adequate sensitivity for the compounds of interest.

11.4.6 Record the peak area (or height) for each congener or each characteristic Aroclor peak to be used for quantitation.

11.4.6.1 A minimum of 3 peaks must be chosen for each Aroclor, and preferably 5 peaks. The peaks must be characteristic of the Aroclor in question. Choose peaks in the Aroclor standards that are at least 25% of the height of the largest Aroclor peak. For each Aroclor, the set of 3 to 5 peaks should include at least one peak that is unique to that Aroclor. Use at least five peaks for the Aroclor 1016/1260 mixture, none of which should be found in both of these Aroclors.

11.4.6.2 Late-eluting Aroclor peaks are generally the most stable in the environment. Table 5 lists diagnostic peaks in each Aroclor, along with example retention times on two GC columns suitable for single-column analysis. Table 6 lists 13 specific PCB congeners found in Aroclor mixtures. Table 7 lists PCB congeners with example retention times on a DB-5 wide-bore GC column. Use these tables as guidance in choosing the appropriate peaks. Each laboratory must determine retention times and retention time windows for their specific application of the method.

11.4.7 When determining PCB congeners by the internal standard procedure, calculate the response factor (RF) for each congener in the calibration standards relative to the internal standard, decachlorobiphenyl, using the equation that follows.

$$RF = \frac{A_s \times C_{is}}{A_{is} \times C_s}$$

where:

A_s = Peak area (or height) of the analyte or surrogate.

A_{is} = Peak area (or height) of the internal standard.

C_s = Concentration of the analyte or surrogate, in μ g/L.

C_{is} = Concentration of the internal standard, in μ g/L.

11.4.8 When determining PCBs as Aroclors by the external standard technique, calculate the calibration factor (CF) for each characteristic Aroclor peak in each of the initial calibration standards (from either Sec. 11.4.3.1 or 11.4.3.2) using the equation below.

$$CF = \frac{\text{Peak Area (or Height) in the Standard}}{\text{Total Mass of the Standard Injected (in nanograms)}}$$

Using the equation above, a calibration factor will be determined for each characteristic peak, using the total mass of the Aroclor injected. These individual calibration factors are used to quantitate sample results by applying the factor for each individual peak to the area of that peak, as described in Sec. 11.9.

For a five-point calibration, five sets of calibration factors will be generated for the Aroclor 1016/1260 mixture, each set consisting of the calibration factors for each of the five (or more) peaks chosen for this mixture, e.g., there will be at least 25 separate calibration factors for the mixture. The single standard for each of the other Aroclors (see Sec. 11.4.3.1) will generate at least three calibration factors, one for each selected peak.

If a non-linear calibration model is employed, as described in Method 8000, then additional standards containing each Aroclor of interest will be employed, with a corresponding increase in the total number of calibration factors.

11.4.9 The response factors or calibration factors from the initial calibration are used to evaluate the linearity of the initial calibration, if a linear calibration model is used. This involves the calculation of the mean response or calibration factor, the standard deviation, and the relative standard deviation (RSD) for each congener or Aroclor peak.

When the Aroclor 1016/1260 mixture is used to demonstrate the detector response, the linear calibration models must be applied to the other five Aroclors for which only single standards are analyzed. If multi-point calibration is performed for individual Aroclors (see Sec. 11.4.3.3), use the calibration factors from those standards to evaluate linearity.

See Method 8000 for the specifics of the evaluation of the linearity of the calibration and guidance on performing non-linear calibrations. In general, non-linear calibrations also will consider each characteristic Aroclor peak separately.

11.5 Retention time windows

Absolute retention times are generally used for compound identification. When absolute retention times are used, retention time windows are crucial to the identification of target compounds, and should be established by one of the approaches described in Method 8000. Retention time windows are established to compensate for minor shifts in absolute retention times as a result of sample loadings and normal chromatographic variability. The width of the retention time window should be carefully established to minimize the occurrence of both false positive and false negative results. Tight retention time windows may result in false negatives and/or may cause unnecessary reanalysis of samples when surrogates or spiked compounds are erroneously not identified. Overly wide retention time windows may result in false positive results that cannot be confirmed upon further analysis. Analysts should consult Method 8000 for the details of establishing retention time windows. Other approaches to compound identification may be employed, provided that the analyst can demonstrate and document that the approaches are appropriate for the intended application. When PCBs are determined as congeners by an internal standard technique, absolute retention times may be used in conjunction with relative retention times (relative to the internal standard).

When conducting either Aroclor or congener analysis, it is important to determine that common single-component pesticides such as DDT, DDD, and DDE do not elute at the same retention times as the target congeners. There may be substantial DDT interference with the last major Aroclor 1254 peak in some soil and sediment samples. Therefore, in conjunction with determining the retention time windows of the congeners, the analyst should analyze a standard containing the DDT analogs. This standard need only be analyzed when the retention time

windows are determined. It is not considered part of the routine initial calibration or calibration verification steps in the method, nor are there any performance criteria associated with the analysis of this standard.

If Aroclor analysis is performed and any of the DDT analogs elute at the same retention time as an Aroclor peak that was chosen for use in quantitation (see Sec. 11.4.6), then the analyst must either adjust the GC conditions to achieve better resolution, or choose another peak that is characteristic of that Aroclor and does not correspond to a peak from a DDT analog. If PCB congener analysis is performed and any of the DDT analogs elute at the same retention time as a PCB congener of interest, then the analyst must adjust the GC conditions to achieve better resolution.

11.6 Gas chromatographic analysis of sample extracts

11.6.1 The same GC operating conditions used for the initial calibration must be employed for the analysis of samples.

11.6.2 Verify calibration at least once each 12-hr shift by injecting calibration verification standards prior to conducting any sample analyses. A calibration standard must also be injected at intervals of not less than once every twenty samples (after every 10 samples is recommended to minimize the number of samples requiring reinjection when QC limits are exceeded) and at the end of the analysis sequence. For Aroclor analyses, the calibration verification standard should be a mixture of Aroclor 1016 and Aroclor 1260. The calibration verification process does not *require* analysis of the other Aroclor standards used for pattern recognition, but the analyst may wish to include a standard for one of these Aroclors after the 1016/1260 mixture used for calibration verification throughout the analytical sequence.

11.6.2.1 The calibration factor for each analyte calculated from the calibration verification standard (CF_v) should not exceed a difference of more than ± 20 percent when compared to the mean calibration factor from the initial calibration curve. If a calibration approach other than the RSD method has been employed for the initial calibration (e.g., a linear model not through the origin, a non-linear calibration model, etc.), consult Method 8000 for the specifics of calibration verification.

$$\% \text{ Difference} = \frac{\overline{CF} - CF_v}{\overline{CF}} \times 100$$

11.6.2.2 When internal standard calibration is used for PCB congeners, the response factor calculated from the calibration verification standard (RF_v) should not exceed a ± 20 percent difference when compared to the mean response factor from the initial calibration. If a calibration approach other than the RSD method has been employed for the initial calibration (e.g., a linear model not through the origin, a non-linear calibration model, etc.), consult Method 8000 for the specifics of calibration verification.

$$\% \text{ Difference} = \frac{\overline{RF} - RF_v}{\overline{RF}} \times 100$$

11.6.2.3 If the calibration does not meet the $\pm 20\%$ limit on the basis of each compound, check the instrument operating conditions, and if necessary, restore them to the original settings, and inject another aliquot of the calibration verification standard. If the response for the analyte is still not within $\pm 20\%$, then a new initial calibration must be prepared. See Sec. 11.6.6 for a discussion on the effects of a failing calibration verification standard on sample results.

11.6.3 Inject a measured aliquot of the concentrated sample extract. A 2- μ L aliquot is suggested, however, other injection volumes may be employed, provided that the analyst can demonstrate adequate sensitivity for the compounds of interest. The same injection volume should be used for both the calibration standards and the sample extracts, unless the analyst can demonstrate acceptable performance using different volumes or conditions. Record the volume injected and the resulting peak size in area units.

11.6.4 Qualitative identifications of target analytes are made by examination of the sample chromatograms, as described in Sec. 11.7.

11.6.5 Quantitative results are determined for each identified analyte (Aroclors or congeners), using the procedures described in Secs. 11.8 and 11.9 for either the internal or the external calibration procedure (Method 8000). If the responses in the sample chromatogram exceed the calibration range of the system, dilute the extract and reanalyze. Peak height measurements are recommended over peak area when overlapping peaks cause errors in area integration.

11.6.6 Each sample analysis employing external standard calibration must be bracketed with an acceptable initial calibration, calibration verification standard(s) (each 12-hr analytical shift); or calibration standards interspersed within the samples. The results from these bracketing standards must meet the calibration verification criteria in Sec. 11.6.2.

Multi-level standards (mixtures or multi-component analytes) are highly recommended to ensure that detector response remains stable for all analytes over the calibration range.

When a calibration verification standard fails to meet the QC criteria, all samples that were injected after the last standard that met the QC criteria must be evaluated to prevent misquantitations and possible false negative results, and reinjection of the sample extracts may be required. More frequent analyses of standards will minimize the number of sample extracts that would have to be reinjected if the QC limits are violated for the standard analysis.

However, if the standard analyzed after a group of samples exhibits a response for an analyte that is above the acceptance limit, i.e., $>20\%$, and the analyte was not detected in the specific samples analyzed during the analytical shift, then the extracts for those samples do not need to be reanalyzed, since the verification standard has demonstrated that the analyte would have been detected if it were present. In contrast, if an analyte

above the QC limits was detected in a sample extract, then reinjection is necessary to ensure accurate quantitation.

If an analyte was not detected in the sample and the standard response is more than 20% below the initial calibration response, then reinjection is necessary. The purpose of this reinjection is to ensure that the analyte could be detected, if present, despite the change in the detector response, e.g., to protect against a false negative result.

11.6.7 Sample injections may continue for as long as the calibration verification standards and standards interspersed with the samples meet instrument QC requirements. It is *recommended* that standards be analyzed after every 10 samples (*required* after every 20 samples and at the end of a set) to minimize the number of samples that must be re-injected when the standards fail the QC limits. The sequence ends when the set of samples has been injected or when qualitative or quantitative QC criteria are exceeded.

11.6.8 The use of internal standard calibration techniques does not require that all sample results be bracketed with calibration verification standards. However, when internal standard calibration is used, the retention times of the internal standards and the area responses of the internal standards should be checked for each analysis. Retention time shifts of more than 30 sec from the retention time of the most recent calibration standard and/or changes in internal standard areas of more than -50 to +100% are cause for concern and must be investigated.

11.6.9 If the peak response is less than 2.5 times the baseline noise level, the validity of the quantitative result may be questionable. The analyst should consult with the source of the sample to determine whether further concentration of the sample is warranted.

11.6.10 Use the calibration standards analyzed during the sequence to evaluate retention time stability. If any of the standards fall outside their daily retention time windows, the system is out of control. Determine the cause of the problem and correct it.

11.6.11 If compound identification or quantitation is precluded due to interferences (e.g., broad, rounded peaks or ill-defined baselines are present), corrective action is warranted. Cleanup of the extract or replacement of the capillary column or detector may be necessary. The analyst may begin by rerunning the sample on another instrument to determine if the problem results from analytical hardware or the sample matrix. Refer to Method 3600 for the procedures to be followed in sample cleanup.

11.7 Qualitative identification

The identification of PCBs as either Aroclors or congeners using this method with an electron capture detector is based on agreement between the retention times of peaks in the sample chromatogram with the retention time windows established through the analysis of standards of the target analytes. See Method 8000 for information on the establishment of retention time windows.

Tentative identification of an analyte occurs when a peak from a sample extract falls within the established retention time window for a specific target analyte. Confirmation is necessary when the sample composition is not well characterized. See Method 8000 for information on confirmation of tentative identifications. See Sec. 11.11 of this procedure for information on the use of GC/MS as a confirmation technique.

When results are confirmed using a second GC column of dissimilar stationary phase, the analyst should check the agreement between the quantitative results on both columns once the identification has been confirmed. See Method 8000 for a discussion of such a comparison and appropriate data reporting approaches.

11.7.1 When simultaneous analyses are performed from a single injection (the dual-column GC configuration described in Sec. 11.3), it is not practical to designate one column as the analytical (primary) column and the other as the confirmation column. Since the calibration standards are analyzed on both columns, both columns must meet the calibration acceptance criteria. If the retention times of the peaks on both columns fall within the retention time windows on the respective columns, then the target analyte identification has been confirmed.

11.7.2 The results of a single column/single injection analysis may be confirmed, if necessary, on a second, dissimilar, GC column. In order to be used for confirmation, retention time windows must have been established for the second GC column. In addition, the analyst must demonstrate the sensitivity of the second column analysis. This demonstration must include the analysis of a standard of the target analyte at a concentration at least as low as the concentration estimated from the primary analysis. That standard may be either the individual congeners, individual Aroclor or the Aroclor 1016/1260 mixture.

11.7.3 When samples are analyzed from a source known to contain specific Aroclors, the results from a single-column analysis may be confirmed on the basis of a clearly recognizable Aroclor pattern. This approach should not be attempted for samples from unknown or unfamiliar sources or for samples that appear to contain mixtures of Aroclors. In order to employ this approach, the analyst must document:

- The peaks that were evaluated when comparing the sample chromatogram and the Aroclor standard.
- The absence of major peaks representing any other Aroclor.
- The source-specific information indicating that Aroclors are anticipated in the sample (e.g., historical data, generator knowledge, etc.).

This information should either be provided to the data user or maintained by the laboratory.

11.7.4 See Sec. 11.11 for information on GC/MS confirmation.

11.8 Quantitation of PCBs as congeners

11.8.1 The quantitation of PCB congeners is accomplished by the comparison of the sample chromatogram to those of the PCB congener standards, using the internal standard technique (see Method 8000). Calculate the concentration of each congener.

11.8.2 Depending on project requirements, the PCB congener results may be reported as congeners, or may be summed and reported as total PCBs. The analyst should use caution when using the congener method for quantitation when regulatory requirements are based on Aroclor concentrations. See Sec. 11.9.3.

11.8.3 The analytical procedures for these 19 congeners may be appropriate for the analysis of other congeners not specifically included in this method and may be used

as a template for the development of such a procedure. However, all 209 PCB congeners cannot be separated using the GC columns and procedures described in this method. If this procedure is expanded to encompass other congeners, then the analyst must either document the resolution of the congeners in question or establish procedures for reporting the results of coeluting congeners that are appropriate for the intended application.

11.9 Quantitation of PCBs as Aroclors

The quantitation of PCB residues as Aroclors is accomplished by comparison of the sample chromatogram to that of the most similar Aroclor standard. A choice must be made as to which Aroclor is most similar to that of the residue and whether that standard is truly representative of the PCBs in the sample.

11.9.1 Use the individual Aroclor standards (not the 1016/1260 mixtures) to determine the pattern of peaks on Aroclors 1221, 1232, 1242, 1248, and 1254. The patterns for Aroclors 1016 and 1260 will be evident in the mixed calibration standards.

11.9.2 Once the Aroclor pattern has been identified, compare the responses of 3 to 5 major peaks in the single-point calibration standard for that Aroclor with the peaks observed in the sample extract. The amount of Aroclor is calculated using the individual calibration factor for each of the 3 to 5 characteristic peaks chosen in Sec. 11.4.6.1. and the calibration model (linear or non-linear) established from the multi-point calibration of the 1016/1260 mixture. Non-linear calibration may result in different models for each selected peak. A concentration is determined using each of the characteristic peaks, using the individual calibration factor calculated for that peak in Sec. 11.4.8, and then those 3 to 5 concentrations are averaged to determine the concentration of that Aroclor.

11.9.3 Weathering of PCBs in the environment and changes resulting from waste treatment processes may alter the PCBs to the point that the pattern of a specific Aroclor is no longer recognizable. Samples containing more than one Aroclor present similar problems. If the purpose of the analysis is not regulatory compliance monitoring on the basis of Aroclor concentrations, then it may be more appropriate to perform the analyses using the PCB congener approach described in this method. If results in terms of Aroclors are required, then the quantitation as Aroclors may be performed by measuring the total area of the PCB pattern and quantitating on the basis of the Aroclor standard that is most similar to the sample. Any peaks that are not identifiable as PCBs on the basis of retention times should be subtracted from the total area. When quantitation is performed in this manner, the problems should be fully described for the data user and the specific procedures employed by the analyst should be thoroughly documented.

11.10 Confirmation

Tentative identification of an analyte occurs when a peak from a sample extract falls within the daily retention time window. Confirmation is necessary when the sample composition is not well characterized. Confirmatory techniques such as gas chromatography with a dissimilar column or a mass spectrometer should be used. See Method 8000 for information on confirmation of tentative identifications.

When results are confirmed using a second GC column of dissimilar stationary phase, the analyst should check the agreement between the quantitative results on both columns once the identification has been confirmed. See Method 8000 for a discussion of such a comparison and appropriate data reporting approaches.

When the dual-column approach is employed, the target phenols are identified and confirmed when they meet the identification criteria on both columns.

11.11 GC/MS confirmation

GC/MS confirmation may be used in conjunction with either single-or dual-column analysis if the concentration is sufficient for detection by GC/MS.

11.11.1 Full-scan quadrupole GC/MS will normally require a higher concentration of the analyte of interest than full-scan ion trap or selected ion monitoring techniques. The concentrations will be instrument-dependent, but values for full-scan quadrupole GC/MS may be as high as 10 ng/ μ L in the final extract, while ion trap or SIM may only be a concentration of 1 ng/ μ L.

11.11.2 The GC/MS must be calibrated for the target analytes when it is used for quantitative analysis. If GC/MS is used only for confirmation of the identification of the target analytes, then the analyst must demonstrate that those PCBs identified by GC/ECD can be confirmed by GC/MS. This demonstration may be accomplished by analyzing a single-point standard containing the analytes of interest at or below the concentrations reported in the GC/ECD analysis. When using SIM techniques, the ions and retention times should be characteristic of the Aroclors to be confirmed.

11.11.3 GC/MS confirmation should be accomplished by analyzing the same extract used for GC/ECD analysis and the extract of the associated blank.

11.12 GC/AED confirmation by Method 8085 may be used in conjunction with either single-column or dual-column analysis if the concentration is sufficient for detection by GC/AED.

11.13 Chromatographic system maintenance as corrective action

When system performance does not meet the established QC requirements, corrective action is required, and may include one or more of the following.

11.13.1 Splitter connections

For dual columns which are connected using a press-fit Y-shaped glass splitter or a Y-shaped fused-silica connector, clean and deactivate the splitter port insert or replace with a cleaned and deactivated splitter. Break off the first few centimeters (up to 30 cm) of the injection port side of the column. Remove the columns and solvent backflush according to the manufacturer's instructions. If these procedures fail to eliminate the degradation problem, it may be necessary to deactivate the metal injector body and/or replace the columns.

11.13.2 Metal injector body

Turn off the oven and remove the analytical columns when the oven has cooled. Remove the glass injection port insert (instruments with on-column injection). Lower the injection port temperature to room temperature. Inspect the injection port and remove any noticeable foreign material.

11.13.2.1 Place a beaker beneath the injector port inside the oven. Using a wash bottle, rinse the entire inside of the injector port with acetone and then rinse it with toluene, catching the rinsate in the beaker.

11.13.2.2 Consult the manufacturer's instructions regarding deactivating the injector port body. Glass injection port liners may need deactivation with a silanizing solution containing dimethyldichlorosilane. After all metal surfaces inside the injector body have been thoroughly coated with the deactivation solution, rinse the injector body with toluene, methanol, acetone, then hexane. Reassemble the injector and replace the columns.

11.13.3 Column rinsing

Rinse the column with several column volumes of an appropriate solvent. Both polar and nonpolar solvents are recommended. Depending on the nature of the sample residues expected, the first rinse might be water, followed by methanol and acetone. Methylene chloride is a good final rinse and in some cases may be the only solvent necessary. Fill the column with methylene chloride and allow it to stand flooded overnight to allow materials within the stationary phase to migrate into the solvent. Afterwards, flush the column with fresh methylene chloride, drain the column, and dry it at room temperature with a stream of ultrapure nitrogen.

12.0 DATA ANALYSIS AND CALCULATIONS

See Secs. 11.6 through 11.9 for information regarding data analysis and calculations.

13.0 METHOD PERFORMANCE

13.1 Performance data and related information are provided in SW-846 methods only as examples and guidance. The data do not represent required performance goals for users of the methods. Instead, performance criteria should be developed on a project-specific basis, and the laboratory should establish in-house QC performance criteria for the application of this method. These performance data are not intended to be and must not be used as absolute QC acceptance criteria for purposes of laboratory accreditation.

13.2 The accuracy and precision obtainable with this method depend on the sample matrix, sample preparation technique, optional cleanup techniques, and calibration procedures used. Table 8 provides single laboratory recovery data for Aroclors spiked into clay and soil and extracted with automated Soxhlet. Table 9 provides multiple laboratory data on the precision and accuracy for Aroclors spiked into soil and extracted by automated Soxhlet. These data are provided for guidance purposes only.

13.3 During method performance studies, the concentrations determined as Aroclors were higher than those obtained using the congener method for the limited set of congeners listed in Sec. 1.1. In certain soils, interference prevented the measurement of congener 66. Recoveries of congeners from environmental reference materials ranged from 51 - 66% of the certified Aroclor values, illustrating the potential difficulties in using congener analysis to demonstrate compliance with Aroclor-based regulatory limits. These data are provided for guidance purposes only.

13.4 Tables 10 and 11 contain laboratory performance data for several PCB congeners using supercritical fluid extraction (Method 3562) on an HP 7680 to extract solid samples, including soils, sewage sludge, and fish tissue. Seven replicate extractions were performed on each sample. The method was performed using a variable restrictor and solid trapping material (Florisil). These data are provided for guidance purposes only. Sample analysis was performed by GC/ECD. The following solid samples were used for this study:

13.4.1 Two field-contaminated certified reference materials were extracted by a single laboratory. One of the materials (EC-5) was a lake sediment from Environment Canada. The other material (EC-1) was soil from a dump site and was provided by the National Science and Engineering Research Council of Canada. The average recoveries for EC-5 are based on the certified value for that sample. The average recoveries for EC-1 are based on the certified value of the samples or a Soxhlet value, if a certified value was unavailable for a specific analyte. These data are provided for guidance purposes only.

13.4.2 Four certified reference materials were extracted by two independent laboratories. The materials included a marine sediment from NIST (SRM 1941), a fish tissue from NIST (SRM 2974), a sewage sludge from BCR European Union (CRM 392), and a soil sample from BCR European Union (CRM 481). The average recoveries were based on the certified value of the samples or a Soxhlet value, if a certified value was unavailable for a specific analyte. These data are provided for guidance purposes only.

13.4.3 A weathered sediment sample from Michigan (Saginaw Bay) was extracted by a single laboratory. Soxhlet extractions were carried out on this sample and the SFE recovery is relative to that for each congener. The average recoveries were based on the certified value of the samples. Additional data are shown in the tables for some congeners for which no certified values were available. These data are provided for guidance purposes only.

13.5 Tables 12 through 14 contain single laboratory recovery data for Aroclor 1254 using solid-phase extraction (Method 3535). Recovery data at 2, 10, and 100 µg/L are presented. Results represent three replicate solid-phase extractions of spiked wastewaters. Two different wastewaters from each wastewater type were spiked. All of the extractions were performed using 90-mm C₁₈ disks. These data are provided for guidance purposes only.

13.6 Single-laboratory data were developed for PCBs extracted by pressurized fluid extraction (Method 3545) from sewage sludge, a river sediment standard reference material (SRM 1939), and a certified soil reference material (CRM911-050). Certified values were available for five PCB congeners for the sewage sludge and for four congeners in SRM 1939. The soil reference material was certified for Aroclor 1254. All pressurized fluid extractions were conducted using hexane:acetone (1:1), at 100 °C, 1300-1500 psi, and a 5-min static extraction. Extracts were analyzed by GC/ECD. The data are presented in Tables 15 through 17 and are reported in detail in Reference 13. These data are provided for guidance purposes only.

13.7 Single-laboratory accuracy data were obtained for PCBs extracted by microwave extraction (Method 3546) from three reference materials, EC-1, EC-2, and EC-3, from Environment Canada. Natural soils, glass fiber, and sand samples were also used as matrices that were spiked with PCBs. Concentrations varied between 0.2 and 10 µg/g (total PCBs). All samples were extracted using 1:1 hexane:acetone. Extracts were analyzed by GC/ECD. Method blanks, spikes and spike duplicates were included for the low concentration spikes; matrix spikes were included for all other concentrations. The data are presented in Tables 18 through 20 and are reported in detail in Reference 14. These data are provided for guidance purposes only.

14.0 POLLUTION PREVENTION

14.1 Pollution prevention encompasses any technique that reduces or eliminates the quantity and/or toxicity of waste at the point of generation. Numerous opportunities for pollution prevention exist in laboratory operations. The EPA has established a preferred hierarchy of

environmental management techniques that places pollution prevention as the management option of first choice. Whenever feasible, laboratory personnel should use pollution prevention techniques to address their waste generation. When wastes cannot be feasibly reduced at the source, the Agency recommends recycling as the next best option.

14.2 For information about pollution prevention that may be applicable to laboratories and research institutions consult *Less is Better: Laboratory Chemical management for Waste Reduction* available from the American Chemical Society, Department of Government Relations and Science Policy, 1155 16th Street, NW, Washington, DC, 20036, <http://www.acs.org>.

15.0 WASTE MANAGEMENT

The Environmental Protection Agency requires that laboratory waste management practices be conducted consistent with all applicable rules and regulations. The Agency urges laboratories to protect the air, water, and land by minimizing and controlling all releases from hoods and bench operations, complying with the letter and spirit of any sewer discharge permits and regulations, and by complying with all solid and hazardous waste regulations, particularly the hazardous waste identification rules and land disposal restrictions. For further information on waste management, consult *The Waste Management Manual for Laboratory Personnel* available from the American Chemical Society at the address listed in Sec. 14.2.

16.0 REFERENCES

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17.0 TABLES, DIAGRAMS, FLOW CHARTS, AND VALIDATION DATA

The following pages contain the tables and figures referenced by this method.

TABLE 1

SUGGESTED GC OPERATING CONDITIONS FOR PCBs AS AROCLORS
SINGLE-COLUMN ANALYSIS

Narrow-bore columns

Narrow-bore Column 1 -- 30-m x 0.25 or 0.32-mm ID fused-silica capillary column chemically bonded with SE-54 (DB-5 or equivalent), 1 μ m film thickness.

| | |
|----------------------|--|
| Carrier gas (He) | 16 psi |
| Injector temperature | 225 °C |
| Detector temperature | 300 °C |
| Initial temperature | 100 °C, hold 2 min |
| Temperature program | 100 °C to 160 °C at 15 °C/min, followed by 160 °C to 270 °C at 5 °C/min |
| Final temperature | 270 °C |

Narrow-bore Column 2 -- 30-m x 0.25-mm ID fused-silica capillary column chemically bonded with 35 percent phenyl methylpolysiloxane (DB-608, SPB-608, or equivalent) 25 μ m coating thickness, 1 μ m film thickness

| | |
|-------------------------------|------------------------------|
| Carrier gas (N ₂) | 20 psi |
| Injector temperature | 225 °C |
| Detector temperature | 300 °C |
| Initial temperature | 160 °C, hold 2 min |
| Temperature program | 160 °C to 290 °C at 5 °C/min |
| Final temperature | 290 °C, hold 1 min |

Wide-bore columns

Wide-bore Column 1 -- 30-m x 0.53-mm ID fused-silica capillary column chemically bonded with 35 percent phenyl methylpolysiloxane (DB-608, SPB-608, RTx-35, or equivalent), 0.5 μ m or 0.83 μ m film thickness.

Wide-bore Column 2 -- 30-m x 0.53-mm ID fused-silica capillary column chemically bonded with 14% cyanopropylmethylpolysiloxane (DB-1701, or equivalent), 1.0 μ m film thickness.

| | |
|--|------------------------------|
| Carrier gas (He) | 5-7 mL/min |
| Makeup gas (argon/methane [P-5 or P-10] or N ₂) | 30 mL/min |
| Injector temperature | 250 °C |
| Detector temperature | 290 °C |
| Initial temperature | 150 °C, hold 0.5 min |
| Temperature program | 150 °C to 270 °C at 5 °C/min |
| Final temperature | 270 °C, hold 10 min |

TABLE 1
(continued)

SUGGESTED GC OPERATING CONDITIONS FOR PCBs AS AROCLORS
SINGLE-COLUMN ANALYSIS

Wide-bore Columns (continued)

Wide-bore Column 3 -- 30-m x 0.53-mm ID fused-silica capillary column chemically bonded with SE-54 (DB-5, SPB-5, RTx-5, or equivalent), 1.5 µm film thickness.

| | |
|--|---|
| Carrier gas (He) | 6 mL/min |
| Makeup gas (argon/methane [P-5 or P-10] or N ₂) | 30 mL/min |
| Injector temperature | 205 °C |
| Detector temperature | 290 °C |
| Initial temperature | 140 °C, hold 2 min |
| Temperature program | 140 °C to 240 °C at 10 °C/min, hold 5 min at 240 °C, 240 °C to 265 °C at 5 °C/min |
| Final temperature | 265 °C, hold 18 min |

TABLE 2

SUGGESTED GC OPERATING CONDITIONS FOR PCBs AS AROCLORS
FOR THE DUAL-COLUMN METHOD OF ANALYSIS

Column 1 -- DB-1701 or equivalent, 30-m x 0.53-mm ID, 1.0 μ m film thickness.

Column 2 -- DB-5 or equivalent, 30-m x 0.53-mm ID, 1.5 μ m film thickness.

| | |
|--|--|
| Carrier gas (He) flow rate | 6 mL/min |
| Makeup gas (N ₂) flow rate | 20 mL/min |
| Temperature program | 0.5 min hold 150 °C to 190 °C, at 12 °C/min, 2 min hold 190 °C to 275 °C, at 4 °C/min, 10 min hold |
| Injector temperature | 250 °C |
| Detector temperature | 320 °C |
| Injection volume | 2 μ L |
| Solvent | Hexane |
| Type of injector | Flash vaporization |
| Detector type | Dual ECD |
| Range | 10 |
| Attenuation | 64 (DB-1701)/64 (DB-5) |
| Type of splitter | J&W Scientific press-fit Y-shaped inlet splitter |

TABLE 3
(continued)

TABLE 3
EXAMPLE RETENTION TIMES OF AROCLORS
ON THE DB-5 COLUMN^a, DUAL-COLUMN ANALYSIS

| Peak No. | Aroclor 1016 | Aroclor 1221 | Aroclor 1232 | Aroclor 1242 | Aroclor 1248 | Aroclor 1254 | Aroclor 1260 |
|----------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 1 | | 5.85 | 5.85 | | | | |
| 2 | | 7.63 | 7.64 | 7.57 | | | |
| 3 | 8.41 | 8.43 | 8.43 | 8.37 | | | |
| 4 | 8.77 | 8.77 | 8.78 | 8.73 | | | |
| 5 | 8.98 | 8.99 | 9.00 | 8.94 | 8.95 | | |
| 6 | 9.71 | | | 9.66 | | | |
| 7 | 10.49 | 10.50 | 10.50 | 10.44 | 10.45 | | |
| 8 | 10.58 | 10.59 | 10.59 | 10.53 | | | |
| 9 | 10.90 | | 10.91 | 10.86 | 10.85 | | |
| 10 | 11.23 | 11.24 | 11.24 | 11.18 | 11.18 | | |
| 11 | 11.88 | | 11.90 | 11.84 | 11.85 | | |
| 12 | 11.99 | | 12.00 | 11.95 | | | |
| 13 | 12.27 | 12.29 | 12.29 | 12.24 | 12.24 | | |
| 14 | 12.66 | 12.68 | 12.69 | 12.64 | 12.64 | | |
| 15 | 12.98 | 12.99 | 13.00 | 12.95 | 12.95 | | |
| 16 | 13.18 | | 13.19 | 13.14 | 13.15 | | |
| 17 | 13.61 | | 13.63 | 13.58 | 13.58 | 13.59 | 13.59 |
| 18 | 13.80 | | 13.82 | 13.77 | 13.77 | 13.78 | |
| 19 | 13.96 | | 13.97 | 13.93 | 13.93 | 13.90 | |
| 20 | 14.48 | | 14.50 | 14.46 | 14.45 | 14.46 | |
| 21 | 14.63 | | 14.64 | 14.60 | 14.60 | | |
| 22 | 14.99 | | 15.02 | 14.98 | 14.97 | 14.98 | |
| 23 | 15.35 | | 15.36 | 15.32 | 15.31 | 15.32 | |
| 24 | 16.01 | | | 15.96 | | | |
| 25 | | | 16.14 | 16.08 | 16.08 | 16.10 | |
| 26 | 16.27 | | 16.29 | 16.26 | 16.24 | 16.25 | 16.26 |
| 27 | | | | | | 16.53 | |
| 28 | | | 17.04 | | 16.99 | 16.96 | 16.97 |
| 29 | | | 17.22 | 17.19 | 17.19 | 17.19 | 17.21 |
| 30 | | | 17.46 | 17.43 | 17.43 | 17.44 | |
| 31 | | | | | 17.69 | 17.69 | |
| 32 | | | | 17.92 | 17.91 | 17.91 | |
| 33 | | | | 18.16 | 18.14 | 18.14 | |
| 34 | | | 18.41 | 18.37 | 18.36 | 18.36 | 18.37 |
| 35 | | | 18.58 | 18.56 | 18.55 | 18.55 | |
| 36 | | | | | | | 18.68 |
| 37 | | | 18.83 | 18.80 | 18.78 | 18.78 | 18.79 |
| 38 | | | 19.33 | 19.30 | 19.29 | 19.29 | 19.29 |

TABLE 3
(continued)

| Peak No. | Aroclor 1016 | Aroclor 1221 | Aroclor 1232 | Aroclor 1242 | Aroclor 1248 | Aroclor 1254 | Aroclor 1260 |
|----------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 39 | | | | | | 19.48 | 19.48 |
| 40 | | | | | | 19.81 | 19.80 |
| 41 | | | 20.03 | 19.97 | 19.92 | 19.92 | |
| 42 | | | | | | 20.28 | 20.28 |
| 43 | | | | | 20.46 | 20.45 | |
| 44 | | | | | | 20.57 | 20.57 |
| 45 | | | | 20.85 | 20.83 | 20.83 | 20.83 |
| 46 | | | 21.18 | 21.14 | 21.12 | 20.98 | |
| 47 | | | | | 21.36 | 21.38 | 21.38 |
| 48 | | | | | | 21.78 | 21.78 |
| 49 | | | | 22.08 | 22.05 | 22.04 | 22.03 |
| 50 | | | | | | 22.38 | 22.37 |
| 51 | | | | | | 22.74 | 22.73 |
| 52 | | | | | | 22.96 | 22.95 |
| 53 | | | | | | 23.23 | 23.23 |
| 54 | | | | | | | 23.42 |
| 55 | | | | | | 23.75 | 23.73 |
| 56 | | | | | | 23.99 | 23.97 |
| 57 | | | | | | | 24.16 |
| 58 | | | | | | 24.27 | |
| 59 | | | | | | | 24.45 |
| 60 | | | | | | 24.61 | 24.62 |
| 61 | | | | | | 24.93 | 24.91 |
| 62 | | | | | | | 25.44 |
| 63 | | | | | | 26.22 | 26.19 |
| 64 | | | | | | | 26.52 |
| 65 | | | | | | | 26.75 |
| 66 | | | | | | | 27.41 |
| 67 | | | | | | | 28.07 |
| 68 | | | | | | | 28.35 |
| 69 | | | | | | | 29.00 |

^a GC operating conditions are given in Table 2. All retention times in minutes and are provided for illustrative purposes only. Each laboratory must determine retention times and retention time windows for their specific application of the method.

^b The peaks listed in this table are sequentially numbered in elution order for illustrative purposes only and are not isomer numbers.

TABLE 4

EXAMPLE RETENTION TIMES OF AROCLORS
ON THE DB-1701 COLUMN^a, DUAL-COLUMN ANALYSIS

| Peak No. | Aroclor 1016 | Aroclor 1221 | Aroclor 1232 | Aroclor 1242 | Aroclor 1248 | Aroclor 1254 | Aroclor 1260 |
|----------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 1 | | 4.45 | 4.45 | | | | |
| 2 | | 5.38 | | | | | |
| 3 | | 5.78 | | | | | |
| 4 | | 5.86 | 5.86 | | | | |
| 5 | 6.33 | 6.34 | 6.34 | 6.28 | | | |
| 6 | 6.78 | 6.78 | 6.79 | 6.72 | | | |
| 7 | 6.96 | 6.96 | 6.96 | 6.90 | 6.91 | | |
| 8 | 7.64 | | | 7.59 | | | |
| 9 | 8.23 | 8.23 | 8.23 | 8.15 | 8.16 | | |
| 10 | 8.62 | 8.63 | 8.63 | 8.57 | | | |
| 11 | 8.88 | | 8.89 | 8.83 | 8.83 | | |
| 12 | 9.05 | 9.06 | 9.06 | 8.99 | 8.99 | | |
| 13 | 9.46 | | 9.47 | 9.40 | 9.41 | | |
| 14 | 9.77 | 9.79 | 9.78 | 9.71 | 9.71 | | |
| 15 | 10.27 | 10.29 | 10.29 | 10.21 | 10.21 | | |
| 16 | 10.64 | 10.65 | 10.66 | 10.59 | 10.59 | | |
| 17 | | | | 10.96 | 10.95 | 10.95 | |
| 18 | 11.01 | | 11.02 | 11.02 | 11.03 | | |
| 19 | 11.09 | | 11.10 | | | | |
| 20 | 11.98 | | 11.99 | 11.94 | 11.93 | 11.93 | |
| 21 | 12.39 | | 12.39 | 12.33 | 12.33 | 12.33 | |
| 22 | | | 12.77 | 12.71 | 12.69 | | |
| 23 | 12.92 | | | 12.94 | 12.93 | | |
| 24 | 12.99 | | 13.00 | 13.09 | 13.09 | 13.10 | |
| 25 | 13.14 | | 13.16 | | | | |
| 26 | | | | | | 13.24 | |
| 27 | 13.49 | | 13.49 | 13.44 | 13.44 | | |
| 28 | 13.58 | | 13.61 | 13.54 | 13.54 | 13.51 | 13.52 |
| 29 | | | | 13.67 | | 13.68 | |
| 30 | | | 14.08 | 14.03 | 14.03 | 14.03 | 14.02 |
| 31 | | | 14.30 | 14.26 | 14.24 | 14.24 | 14.25 |
| 32 | | | | | 14.39 | 14.36 | |
| 33 | | | 14.49 | 14.46 | 14.46 | | |
| 34 | | | | | | 14.56 | 14.56 |
| 35 | | | | | 15.10 | 15.10 | |
| 36 | | | 15.38 | 15.33 | 15.32 | 15.32 | |
| 37 | | | 15.65 | 15.62 | 15.62 | 15.61 | 16.61 |
| 38 | | | 15.78 | 15.74 | 15.74 | 15.74 | 15.79 |
| 39 | | | 16.13 | 16.10 | 16.10 | 16.08 | |
| 40 | | | | | | | 16.19 |
| 41 | | | | | | 16.34 | 16.34 |

TABLE 4
(continued)

| Peak No. | Aroclor 1016 | Aroclor 1221 | Aroclor 1232 | Aroclor 1242 | Aroclor 1248 | Aroclor 1254 | Aroclor 1260 |
|----------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 42 | | | | | | 16.44 | 16.45 |
| 43 | | | | | | 16.55 | |
| 44 | | | 16.77 | 16.73 | 16.74 | 16.77 | 16.77 |
| 45 | | | 17.13 | 17.09 | 17.07 | 17.07 | 17.08 |
| 46 | | | | | | 17.29 | 17.31 |
| 47 | | | | 17.46 | 17.44 | 17.43 | 17.43 |
| 48 | | | | 17.69 | 17.69 | 17.68 | 17.68 |
| 49 | | | | | 18.19 | 18.17 | 18.18 |
| 50 | | | | 18.48 | 18.49 | 18.42 | 18.40 |
| 51 | | | | | | 18.59 | |
| 52 | | | | | | 18.86 | 18.86 |
| 53 | | | | 19.13 | 19.13 | 19.10 | 19.09 |
| 54 | | | | | | 19.42 | 19.43 |
| 55 | | | | | | 19.55 | 19.59 |
| 56 | | | | | | 20.20 | 20.21 |
| 57 | | | | | | 20.34 | |
| 58 | | | | | | | 20.43 |
| 59 | | | | | 20.57 | 20.55 | |
| 60 | | | | | | 20.62 | 20.66 |
| 61 | | | | | | 20.88 | 20.87 |
| 62 | | | | | | | 21.03 |
| 63 | | | | | | 21.53 | 21.53 |
| 64 | | | | | | 21.83 | 21.81 |
| 65 | | | | | | 23.31 | 23.27 |
| 66 | | | | | | | 23.85 |
| 67 | | | | | | | 24.11 |
| 68 | | | | | | | 24.46 |
| 69 | | | | | | | 24.59 |
| 70 | | | | | | | 24.87 |
| 71 | | | | | | | 25.85 |
| 72 | | | | | | | 27.05 |
| 73 | | | | | | | 27.72 |

^a GC operating conditions are given in Table 2. All retention times are in minutes and are provided for illustrative purposes only. Each laboratory must determine retention times and retention time windows for their specific application of the method.

^b The peaks listed in this table are sequentially numbered in elution order for illustrative purposes only and are not isomer numbers.

TABLE 5

EXAMPLE RETENTION TIMES OF PEAKS DIAGNOSTIC OF PCBs
ON A 0.53-mm ID COLUMNS DURING SINGLE-COLUMN ANALYSIS

| Peak No. ^a | RT on DB-608 ^b | RT on DB-1701 ^b | Aroclor ^c |
|-----------------------|---------------------------|----------------------------|--------------------------------|
| I | 4.90 | 4.66 | 1221 |
| II | 7.15 | 6.96 | 1221, 1232, 1248 |
| III | 7.89 | 7.65 | 1061, <u>1221</u> , 1232, 1242 |
| IV | 9.38 | 9.00 | 1016, 1232, 1242, 1248 |
| V | 10.69 | 10.54 | <u>1016, 1232, 1242</u> |
| VI | 14.24 | 14.12 | <u>1248</u> , 1254 |
| VII | 14.81 | 14.77 | 1254 |
| VIII | 16.71 | 16.38 | <u>1254</u> |
| IX | 19.27 | 18.95 | 1254, 1260 |
| X | 21.22 | 21.23 | <u>1260</u> |
| XI | 22.89 | 22.46 | 1260 |

^aPeaks are sequentially numbered in elution order and are not isomer numbers

^bTemperature program: T_i = 150 °C, hold 30 sec; 5 °C/min to 275 °C.

^cUnderline indicates the largest peak in the pattern for that Aroclor

All retention times are in minutes and are provided for illustrative purposes only. Each laboratory must determine retention times and retention time windows for their specific application of the method.

TABLE 6

SPECIFIC PCB CONGENERS THAT ARE MAJOR COMPONENTS IN COMMON AROCLORS

| Congener | IUPAC Number | Aroclor | | | | | | |
|-----------------------|--------------|---------|------|------|------|------|------|------|
| | | 1016 | 1221 | 1232 | 1242 | 1248 | 1254 | 1260 |
| Biphenyl | -- | | X | | | | | |
| 2-CB | 1 | X | X | X | X | | | |
| 2,3-DCB | 5 | X | X | X | X | X | | |
| 3,4-DCB | 12 | X | | X | X | X | | |
| 2,4,4'-TCB | 28* | X | | X | X | X | X | |
| 2,2',3,5'-TCB | 44 | | | X | X | X | X | X |
| 2,3',4,4'-TCB | 66* | | | | | X | X | X |
| 2,3,3',4',6-PCB | 110 | | | | | | X | |
| 2,3',4,4',5-PCB | 118* | | | | | | X | X |
| 2,2',4,4',5,5'-HCB | 153 | | | | | | | X |
| 2,2',3,4,4',5'-HCB | 138 | | | | | | | X |
| 2,2',3,4,4',5,5'-HpCB | 180 | | | | | | | X |
| 2,2',3,3',4,4',5-HpCB | 170 | | | | | | | X |

*Apparent co-elution of: 28 with 31 (2,4',5-trichlorobiphenyl)
66 with 95 (2,2',3,5',6-pentachlorobiphenyl)
118 with 149 (2,2',3,4',5',6-hexachlorobiphenyl)

This table is not intended to illustrate all of the congeners that may be present in a given Aroclor, but rather to illustrate the major congener components.

TABLE 7
EXAMPLE RETENTION TIMES OF PCB CONGENERS ON THE DB-5 WIDE-BORE COLUMN

| IUPAC Number | Retention Time (min) |
|---------------------|----------------------|
| 1 | 6.52 |
| 5 | 10.07 |
| 18 | 11.62 |
| 31 | 13.43 |
| 52 | 14.75 |
| 44 | 15.51 |
| 66 | 17.20 |
| 101 | 18.08 |
| 87 | 19.11 |
| 110 | 19.45 |
| 151 | 19.87 |
| 153 | 21.30 |
| 138 | 21.79 |
| 141 | 22.34 |
| 187 | 22.89 |
| 183 | 23.09 |
| 180 | 24.87 |
| 170 | 25.93 |
| 206 | 30.70 |
| 209 | 32.63 |
| (internal standard) | |

All data are provided for illustrative purposes only. Each laboratory must determine retention times and retention time windows for their specific application of the method.

TABLE 8

EXAMPLE SINGLE-LABORATORY RECOVERY DATA FOR THE EXTRACTION OF
PCBs FROM CLAY AND SOIL BY AUTOMATED SOXHLET (METHOD 3541)^a

| Matrix | Aroclor | Spike Level (ppm) | Trial | Percent Recovery ^b |
|--------|---------|-------------------|-------|-------------------------------|
| Clay | 1254 | 5 | 1 | 87 |
| | | | 2 | 93 |
| | | | 3 | 94 |
| | | | 4 | 99 |
| | | | 5 | 79 |
| | | | 6 | 28 |
| Clay | 1254 | 50 | 1 | 65 |
| | | | 2 | 72 |
| | | | 3 | 97 |
| | | | 4 | 80 |
| | | | 5 | 50 |
| | | | 6 | 59 |
| Clay | 1260 | 5 | 1 | 87 |
| | | | 2 | 75 |
| | | | 3 | 61 |
| | | | 4 | 94 |
| | | | 5 | 97 |
| | | | 6 | 113 |
| Clay | 1260 | 50 | 1 | 74 |
| | | | 2 | 70 |
| | | | 3 | 92 |
| | | | 4 | 89 |
| | | | 5 | 90 |
| | | | 6 | 67 |

TABLE 8
(continued)

| Matrix | Aroclor | Spike Level (ppm) | Trial | Percent Recovery ^b |
|--------|---------|-------------------|-------|-------------------------------|
| Soil | 1254 | 5 | 1 | 70 |
| | | | 2 | 89 |
| | | | 3 | 92 |
| | | | 4 | 83 |
| | | | 5 | 63 |
| Soil | 1254 | 50 | 1 | 84 |
| | | | 2 | 78 |
| | | | 3 | 92 |
| | | | 4 | 67 |
| | | | 5 | 82 |
| Soil | 1260 | 5 | 6 | 62 |
| | | | 1 | 84 |
| | | | 2 | 83 |
| | | | 3 | 82 |
| | | | 4 | 96 |
| Soil | 1260 | 50 | 5 | 94 |
| | | | 6 | 94 |
| | | | 7 | 98 |
| | | | 1 | 77 |
| | | | 2 | 69 |
| Soil | 1260 | 50 | 3 | 93 |
| | | | 4 | 82 |
| | | | 5 | 83 |
| | | | 6 | 76 |

^aThe operating conditions for the automated Soxhlet
Immersion time: 60 min
Reflux time: 60 min

^bMultiple results from two different extractors

Data are taken from Reference 9
These data are provided for guidance purposes only.

TABLE 9

EXAMPLE MULTIPLE-LABORATORY PRECISION AND ACCURACY DATA
FOR THE EXTRACTION OF PCBs FROM SPIKED SOIL
BY AUTOMATED SOXHLET (METHOD 3541)

| | | Percent Recovery at Aroclor 1254 Spike Concentration (µg/kg) | | | Percent Recovery at Aroclor 1260 Spike Concentration (µg/kg) | | | Mean Recovery |
|-------------|-------|--|-------|------|--|-------|------|------------------|
| | | 5 | 50 | 500 | 5 | 50 | 500 | All Levels |
| Lab 1 | n | 3 | 3 | | 3 | 3 | | 12 |
| | Mean | 101.2 | 74.0 | | 83.9 | 78.5 | | 84.4 |
| | S. D. | 34.9 | 41.8 | | 7.4 | 7.4 | | 26.0 |
| Lab 2 | n | | 6 | 6 | | 6 | 6 | 24 |
| | Mean | | 56.5 | 66.9 | | 70.1 | 74.5 | 67.0 |
| | S. D. | | 7.0 | 15.4 | | 14.5 | 10.3 | 13.3 |
| Lab 3 | n | 3 | 3 | | 3 | 3 | | 12 |
| | Mean | 72.8 | 63.3 | | 70.6 | 57.2 | | 66.0 |
| | S. D. | 10.8 | 8.3 | | 2.5 | 5.6 | | 9.1 |
| Lab 4 | n | 6 | 6 | | 6 | 6 | | 24 |
| | Mean | 112.6 | 144.3 | | 100.3 | 84.8 | | 110.5 |
| | S. D. | 18.2 | 30.4 | | 13.3 | 3.8 | | 28.5 |
| Lab 5 | n | | 3 | 3 | | 3 | 3 | 12 |
| | Mean | | 97.1 | 80.1 | | 79.5 | 77.0 | 83.5 |
| | S. D. | | 8.7 | 5.1 | | 3.1 | 9.4 | 10.3 |
| Lab 6 | n | 2 | 3 | | 3 | 4 | | 12 |
| | Mean | 140.9 | 127.7 | | 138.7 | 105.9 | | 125.4 |
| | S. D. | 4.3 | 15.5 | | 15.5 | 7.9 | | 18.4 |
| Lab 7 | n | 3 | 3 | | 3 | 3 | | 12 |
| | Mean | 100.1 | 123.4 | | 82.1 | 94.1 | | 99.9 |
| | S. D. | 17.9 | 14.6 | | 7.9 | 5.2 | | 19.0 |
| Lab 8 | n | 3 | 3 | | 3 | 3 | | 12 |
| | Mean | 65.0 | 38.3 | | 92.8 | 51.9 | | 62.0 |
| | S. D. | 16.0 | 21.9 | | 36.5 | 12.8 | | 29.1 |
| All Labs | n | 20 | 30 | 9 | 21 | 31 | 9 | 120 |
| | Mean | 98.8 | 92.5 | 71.3 | 95.5 | 78.6 | 75.3 | 87.6 |
| | S. D. | 28.7 | 42.9 | 14.1 | 25.3 | 18.0 | 9.5 | 29.7 |

Data are taken from Reference 7

These data are provided for guidance purposes only.

TABLE 10

EXAMPLE PERCENT RECOVERY (BIAS) OF PCBs IN VARIOUS SOILS
USING SUPERCRITICAL FLUID EXTRACTION (METHOD 3562)

| PCB No. ^a | EC-1 Dump Site Soil Low #1 | SRM 1941 Marine Sediment Low #2 | EC-5 Lake Sediment Low #3 | CRM 481 ^b European Soil High #1 | Saginaw Bay Sediment High #2 | CRM 392 Sewage Sludge High #3 | SRM 2974 Fish Tissue Mussel Low #4 | Congener Mean |
|----------------------|----------------------------------|--|---------------------------------|---|------------------------------------|--|---|------------------|
| 28 | 148.4 | 63.3 | 147.7 | 67.3 | 114.7 | 89.2 | 101.7 | 104.6 |
| 52 | 88.5 | 106.6 | 115.8 | 84.5 | 111.1 | 96.2 | 131.4 | 104.9 |
| 101 | 93.3 | 91.2 | 100.2 | 84.5 | 111.5 | 93.9 | 133.2 | 101.1 |
| 149 | 92.6 | 105.1 | 101.5 | 73.2 | 111.2 | | 69.4 | 92.2 |
| 118 | 89.9 | 66.1 | 108.9 | 82.1 | 110.8 | 73.5 | 82.7 | 87.7 |
| 153 | 90.8 | 65.1 | 95.1 | 82.8 | 118.6 | 97.3 | 107.5 | 94.0 |
| 105 ^b | 89.1 | 72.6 | 96.6 | 83.4 | 111.8 | | 79.4 | 88.8 |
| 138 | 90.1 | 57.4 | 97.9 | 76.9 | 126.9 | | 73.1 | 87.1 |
| 128 | 90.8 | 69.9 | 101.2 | 65.9 | 87.6 | | 62.5 | 79.7 |
| 156 ^b | 90.6 | 88.9 | 94.3 | 85.2 | 101.1 | | 59.3 | 86.6 |
| 180 | 92.4 | 142.4 | 93.3 | 82.2 | 109.2 | 100.5 | 65.7 | 98.0 |
| 170 | 91.3 | 101.1 | 95.2 | 80.5 | | | 33.0 | 81.8 |
| <i>Matrix Mean</i> | 95.7 | 85.8 | 104.0 | 79.0 | 108.7 | 91.8 | 83.2 | 92.2 |

^a Congeners which are either certified or have had Soxhlet confirmation.

^b Congener 105 was not resolved from congener 132 and congener 156 was not resolved from congener 171 by the GC method used for samples EC-1 and EC-5.

TABLE 11

PRECISION (AS %RSD) OF PCBs EXTRACTED USING SUPERCRITICAL FLUID EXTRACTION (METHOD 3562)

| PCB No. ^a | EC-1 Dump Site Soil Low #1 | SRM 1941 Marine Sediment Low #2 | EC-5 Lake Sediment Low #3 | CRM 481 European Soil High #1 | Saginaw Bay Sediment High #2 | CRM 392 Sewage Sludge High #3 | SRM 2974 Fish Tissue Mussel Low #4 | Congener Mean |
|----------------------|----------------------------------|--|---------------------------------|--|------------------------------------|--|---|------------------|
| 28 | 11.5 | 1.5 | 3.8 | 5.6 | 2.4 | 1.9 | 2.7 | 4.2 |
| 52 | 9.1 | 3.3 | 3.9 | 5.4 | 2.2 | 2.9 | 3.1 | 4.3 |
| 101 | 9.1 | 2.9 | 2.8 | 4.9 | 1.4 | 5.2 | 2.9 | 4.2 |
| 149 | 7.1 | 0.7 | 3.8 | 3.9 | 3.4 | | 2.2 | 3.0 |
| 118 | 9.8 | 1.9 | 4.5 | 5.4 | 2.0 | 3.3 | 2.4 | 4.2 |
| 153 | 8.4 | 1.5 | 3.0 | 4.3 | 4.3 | 9.5 | 3.0 | 4.9 |
| 105 ^b | 6.6 | 3.7 | 2.7 | 4.3 | 2.7 | | 2.5 | 3.2 |
| 138 | 9.2 | 1.8 | 3.1 | 4.7 | 2.3 | | 2.9 | 3.4 |
| 128 | 6.0 | 5.3 | 3.3 | 4.9 | 2.8 | | 3.3 | 3.7 |
| 156 ^b | 8.3 | 0.0 | 5.1 | 4.5 | 1.9 | | 3.8 | 3.4 |
| 180 | 8.0 | 1.3 | 3.6 | 4.3 | 3.1 | 9.6 | 2.7 | 4.7 |
| 170 | 5.7 | 2.3 | 3.6 | 3.9 | 2.3 | | 4.0 | 3.1 |
| <i>Matrix Mean</i> | 8.2 | 2.2 | 3.6 | 4.7 | 2.6 | 2.7 | 3.0 | 3.8 |

^a Congeners which are either certified or have had Soxhlet confirmation.^b Congener 105 was not resolved from congener 132 and congener 156 was not resolved from congener 171 by the GC method used for samples EC-1 and EC-5.

These data are provided for guidance purposes only.

TABLE 12

EXAMPLE SINGLE-LABORATORY RECOVERY DATA FOR SOLID-PHASE EXTRACTION (METHOD 3535) OF AROCLOR 1254 FROM WASTEWATER MATRICES SPIKED AT 2 µg/L

| Wastewater Type | Mean Conc. (µg/L) | Percent Recovery | Std. Dev. (µg/L) | RSD (%) |
|-------------------------|----------------------|---------------------|---------------------|------------|
| Chemical Industry | 2.4 | 120 | 0.41 | 17.2 |
| Chemical Industry | 0.6 | 28 | 0.03 | 5.4 |
| Paper Industry | 3.0 | 150 | 0.56 | 18.5 |
| Paper Industry | 2.3 | 115 | 0.08 | 3.7 |
| Pharmaceutical Industry | 1.5 | 76 | 0.03 | 1.7 |
| Pharmaceutical Industry | 1.0 | 51 | 0.03 | 2.9 |
| Refuse | 0.5 | 27 | 0.04 | 6.7 |
| Refuse | 0.6 | 31 | 0.10 | 16.0 |
| POTW | 1.9 | 96 | 0.15 | 7.8 |
| POTW | 2.1 | 105 | 0.04 | 1.8 |

Results represent three replicate solid-phase extractions of spiked wastewaters. Two different wastewaters from each wastewater type were spiked. All extractions were performed using 90-mm C₁₈ extraction disks.

These data are provided for guidance purposes only.

TABLE 13

EXAMPLE SINGLE-LABORATORY RECOVERY DATA FOR SOLID-PHASE EXTRACTION
(METHOD 3535) OF AROCLOR 1254 FROM WASTEWATER MATRICES SPIKED AT 10 µg/L

| Wastewater Type | Mean Conc. (µg/L) | Percent Recovery | Std. Dev. (µg/L) | RSD (%) |
|-------------------------|----------------------|---------------------|---------------------|------------|
| Chemical Industry | 8.8 | 88 | 1.07 | 12.2 |
| Chemical Industry | 8.1 | 81 | 0.06 | 0.7 |
| Paper Industry | 8.9 | 89 | 0.71 | 7.9 |
| Paper Industry | 10.1 | 101 | 0.15 | 1.4 |
| Pharmaceutical Industry | 9.2 | 92 | 0.24 | 2.6 |
| Pharmaceutical Industry | 8.4 | 84 | 0.17 | 2.0 |
| Refuse | 8.8 | 88 | 0.49 | 5.6 |
| Refuse | 8.0 | 80 | 1.44 | 18.0 |
| POTW | 9.5 | 82 | 0.17 | 2.1 |
| POTW | 8.2 | 82 | 0.17 | 2.1 |

Results represent three replicate solid-phase extractions of spiked wastewaters. Two different wastewaters from each wastewater type were spiked. All extractions were performed using 90-mm C₁₈ extraction disks.

These data are provided for guidance purposes only.

TABLE 14

EXAMPLE SINGLE-LABORATORY RECOVERY DATA
FOR SOLID-PHASE EXTRACTION (METHOD 3535) OF AROCLOR 1254
FROM WASTEWATER MATRICES SPIKED AT 100 µg/L

| Wastewater Type | Mean Conc. (µg/L) | Percent Recovery | Std. Dev. (µg/L) | RSD (%) |
|-------------------------|----------------------|---------------------|---------------------|------------|
| Chemical Industry | 81.7 | 82 | 1.46 | 1.8 |
| Chemical Industry | 89.7 | 90 | 0.66 | 0.7 |
| Paper Industry | 73.7 | 74 | 3.94 | 5.3 |
| Paper Industry | 95.3 | 95 | 1.89 | 2.0 |
| Pharmaceutical Industry | 86.4 | 86 | 1.95 | 2.3 |
| Pharmaceutical Industry | 79.2 | 79 | 3.92 | 4.9 |
| Refuse | 85.7 | 86 | 1.59 | 1.9 |
| Refuse | 71.5 | 72 | 1.61 | 2.2 |
| POTW | 87.8 | 88 | 1.76 | 2.0 |
| POTW | 80.6 | 81 | 0.40 | 0.5 |

Results represent three replicate solid-phase extractions of spiked wastewaters. Two different wastewaters from each wastewater type were spiked. All extractions were performed using 90-mm C₁₈ extraction disks.

These data are provided for guidance purposes only.

TABLE 15

EXAMPLE SINGLE-LABORATORY PCB CONGENER DATA
FROM A SEWAGE SLUDGE SAMPLE EXTRACTED BY
PRESSURIZED FLUID EXTRACTION (METHOD 3545)

| PCB No. | Mean Recovery (%) | %RSD | Certified Value (µg/kg) |
|---------|-------------------|------|-------------------------|
| 52 | 114 | 4.7 | 163 |
| 101 | 143 | 7.4 | 161 |
| 138 | 110 | 3.9 | 193 |
| 153 | 110 | 5.8 | 198 |
| 180 | 160 | 7.5 | 207 |

Percent recoveries are the mean of six replicate extractions.

Data are taken from Reference 13.

These data are provided for guidance purposes only.

TABLE 16

EXAMPLE SINGLE-LABORATORY PCB CONGENER DATA
FROM A RIVER SEDIMENT REFERENCE MATERIAL
EXTRACTED BY PRESSURIZED FLUID EXTRACTION (METHOD 3545)

| PCB No. | Mean Recovery (%) | %RSD | Certified Value (µg/kg) |
|---------|-------------------|------|-------------------------|
| 101 | 89 | 3.7 | 780 |
| 138 | 122 | 2.3 | 570 |
| 153 | 62 | 4.1 | 370 |
| 180 | 112 | 5.9 | 180 |

Percent recoveries are the mean of six replicate extractions.

The river sediment reference material was SRM 1939.

Data are taken from Reference 13.

These data are provided for guidance purposes only.

TABLE 17

EXAMPLE SINGLE-LABORATORY AROCLOR 1254 DATA
FROM A SOIL REFERENCE MATERIAL
EXTRACTED BY PRESSURIZED FLUID EXTRACTION (METHOD 3545)

| Replicate Extraction | Aroclor 1254 Concentration ($\mu\text{g/kg}$) |
|----------------------|---|
| 1 | 1290 |
| 2 | 1370 |
| 3 | 1280 |
| 4 | 1370 |
| Mean | 1330 |
| %RSD | 3.5% |
| Certified value | 1340 |
| Mean recovery (%) | 99% |

Data are taken from Reference 13.
These data are provided for guidance purposes only.

TABLE 18

EXAMPLE SINGLE-LABORATORY PCB HOMOLOGUE DATA BY MICROWAVE
EXTRACTION (METHOD 3546) FROM A CERTIFIED
GREAT LAKE SEDIMENT MATERIAL (EC-2)

| PCB homologue | Microwave Extraction | | | Soxhlet Extraction | | |
|---------------------|----------------------|--------------------|-------|--------------------|--------------------|-------|
| | µg/kg | Peaks ^a | % RSD | µg/kg | Peaks ^a | % RSD |
| Trichlorobiphenyl | 130 | 4 | 21.8 | 100 | 4 | 14.6 |
| Tetrachlorobiphenyl | 400 | 10 | 13.2 | 390 | 20 | 10.2 |
| Pentachlorobiphenyl | 310 | 9 | 1.9 | 300 | 9 | 8.7 |
| Hexachlorobiphenyl | 120 | 3 | 0.0 | 110 | 3 | 9.1 |

^a Number of PCB peaks detected
Cl₃ to Cl₁₀ homologues analyzed
n=3

Data are taken from Reference 14. These data are provided for guidance purposes only.

TABLE 19

EXAMPLE SINGLE-LABORATORY PCB HOMOLOGUE DATA BY MICROWAVE
EXTRACTION (METHOD 3546) FROM A CERTIFIED HARBOR SEDIMENT
MATERIAL (SRM-1944)

| PCB homologue | Microwave Extraction | | | Soxhlet Extraction | | |
|---------------------|----------------------|--------------------|-------|--------------------|--------------------|-------|
| | µg/kg | Peaks ^a | % RSD | µg/kg | Peaks ^a | % RSD |
| Trichlorobiphenyl | 450 | 8 | 10.1 | 360 | 6 | 5.8 |
| Tetrachlorobiphenyl | 580 | 12 | 3.9 | 580 | 11 | 6.0 |
| Pentachlorobiphenyl | 330 | 9 | 6.1 | 330 | 9 | 7.9 |
| Hexachlorobiphenyl | 260 | 3 | 12.4 | 240 | 3 | 5.1 |
| Heptachlorobiphenyl | 60 | 2 | 43.8 | 80 | 2 | 27.3 |

^a Number of PCB peaks detected
Cl₃ to Cl₁₀ homologues analyzed
n=3

Data are taken from Reference 14. These data are provided for guidance purposes only.

TABLE 20

EXAMPLE SINGLE-LABORATORY PCB DATA BY MICROWAVE EXTRACTION
(METHOD 3546) FROM CERTIFIED GREAT LAKE SEDIMENT MATERIALS

| Sediment | Total Aroclor Concentration ($\mu\text{g/kg}$) | Standard Deviation ($\mu\text{g/kg}$) | RSD (%) | n | Certified Value ($\mu\text{g/kg}$) |
|----------|---|--|------------|---|---|
| EC-1 | 1850 | 0.07 | 3.78 | 3 | 2000 \pm 54 |
| EC-2 | 1430 | 0.09 | 6.60 | 4 | 1160 \pm 70 |
| EC-3 | 670 | 0.02 | 3.12 | 3 | 660 \pm 54 |

Sample size = 2 g extracted into a final volume of 4 mL

EC-2 and EC-3 certified values were only provisional values at the time the work was conducted. The data presented herein were part of the validation data package used to confirm the certified values.

Data are taken from Reference 14.

These data are provided for guidance purposes only.

FIGURE 1. Example GC/ECD chromatogram of the Aroclor 1016/1260 mixture analyzed on a Rtx-5/HP-608 column pair connected to separate injectors. The top trace is the Rtx-5 column (30-m x 0.53-mm ID, 1.5- μ m film thickness) and the bottom trace is the HP-608 column (30-m x 0.53-mm ID, 0.5- μ m film thickness). Temperature program: 150 °C (1.0 min hold) to 280 °C (17 min hold) at 8 °C/min.

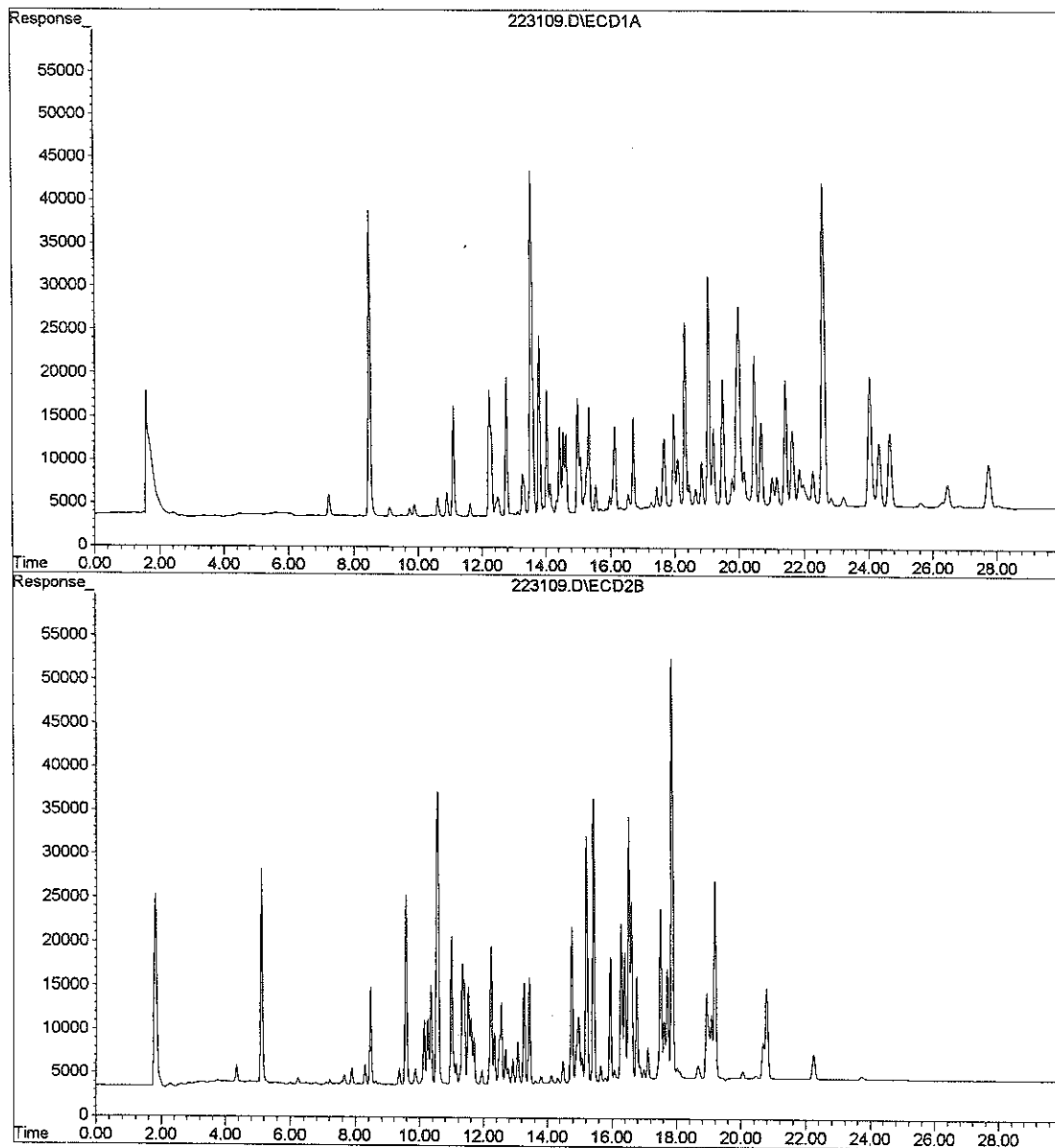


FIGURE 2. Example GC/ECD chromatogram of Aroclor 1221 analyzed on a Rtx-5/HP-608 column pair connected to separate injectors. The top trace is the Rtx-5 column (30-m x 0.53-mm ID, 1.5- μ m film thickness) and the bottom trace is the HP-608 column (30-m x 0.53-mm ID, 0.5- μ m film thickness). Temperature program: 150 $^{\circ}$ C (1.0 min hold) to 280 $^{\circ}$ C (17 min hold) at 8 $^{\circ}$ C/min.

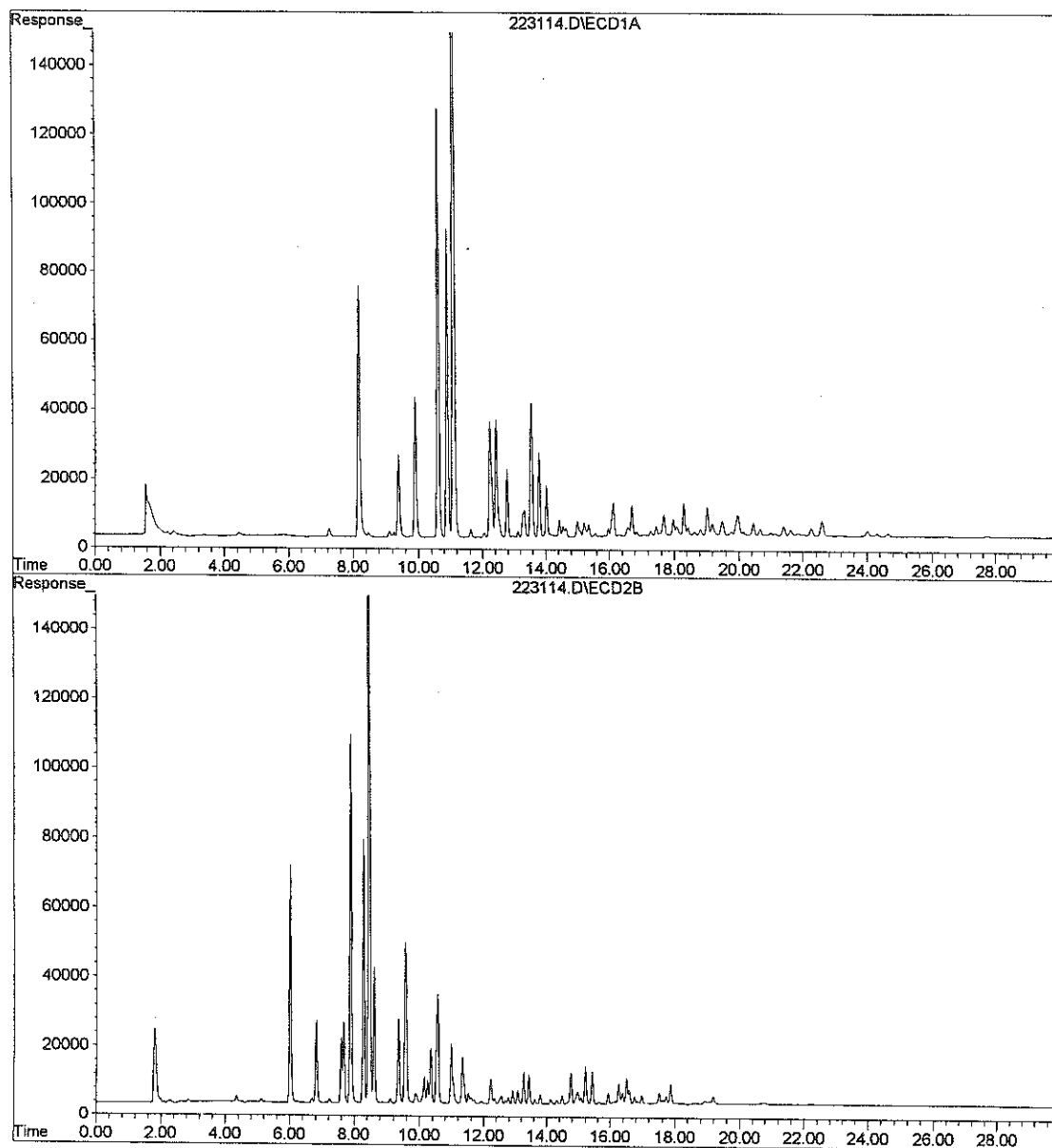


FIGURE 3. Example GC/ECD chromatogram of Aroclor 1232 analyzed on a Rtx-5/HP-608 column pair connected to separate injectors. The top trace is the Rtx-5 column (30-m x 0.53-mm ID, 1.5- μ m film thickness) and the bottom trace is the HP-608 column (30-m x 0.53-mm ID, 0.5- μ m film thickness). Temperature program: 150 °C (1.0 min hold) to 280 °C (17 min hold) at 8 °C/min.

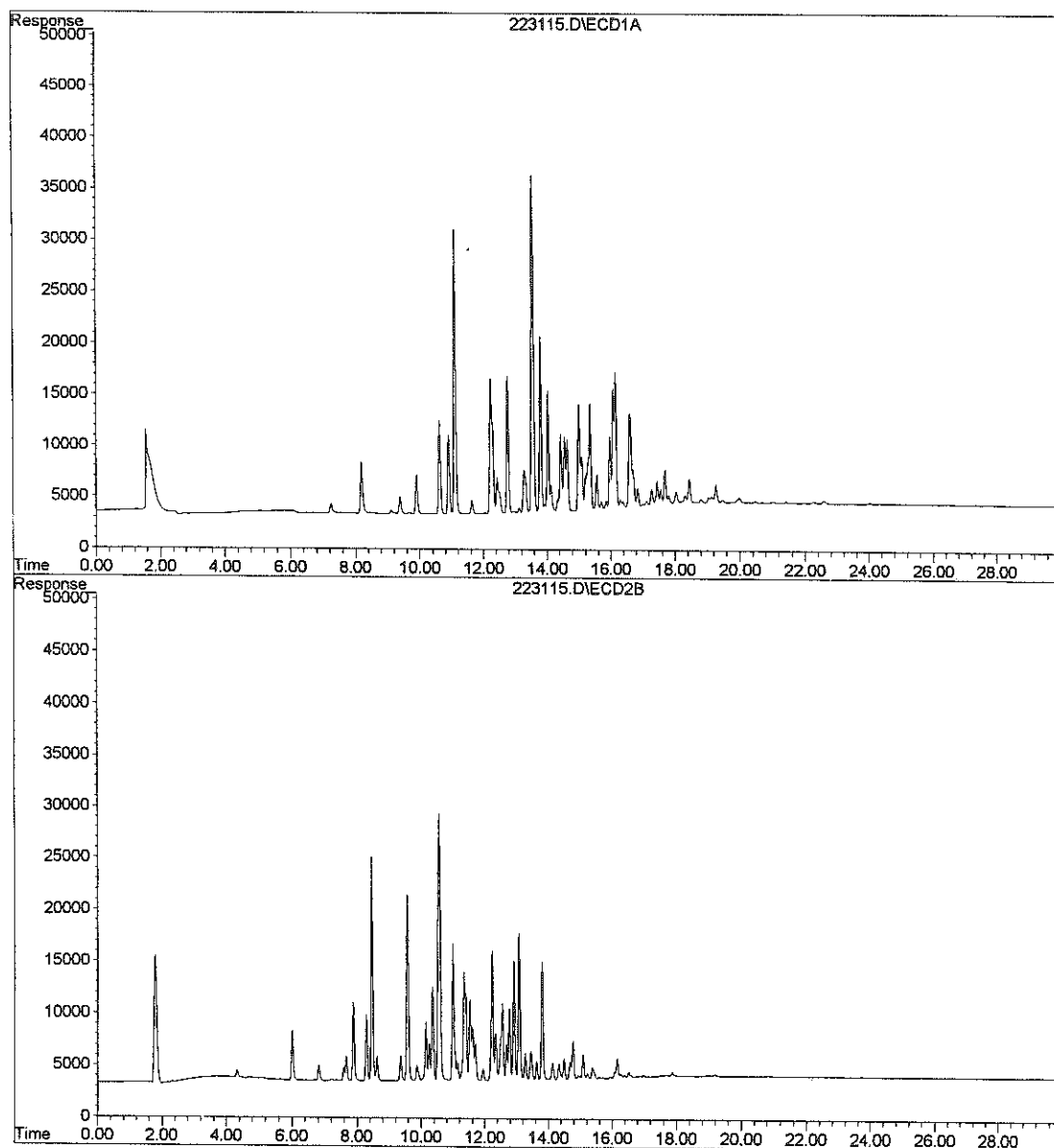


FIGURE 4. Example GC/ECD chromatogram of Aroclor 1242 analyzed on a Rtx-5/HP-608 column pair connected to separate injectors. The top trace is the Rtx-5 column (30-m x 0.53-mm ID, 1.5- μ m film thickness) and the bottom trace is the HP-608 column (30-m x 0.53-mm ID, 0.5- μ m film thickness). Temperature program: 150 $^{\circ}$ C (1.0 min hold) to 280 $^{\circ}$ C (17 min hold) at 8 $^{\circ}$ C/min.

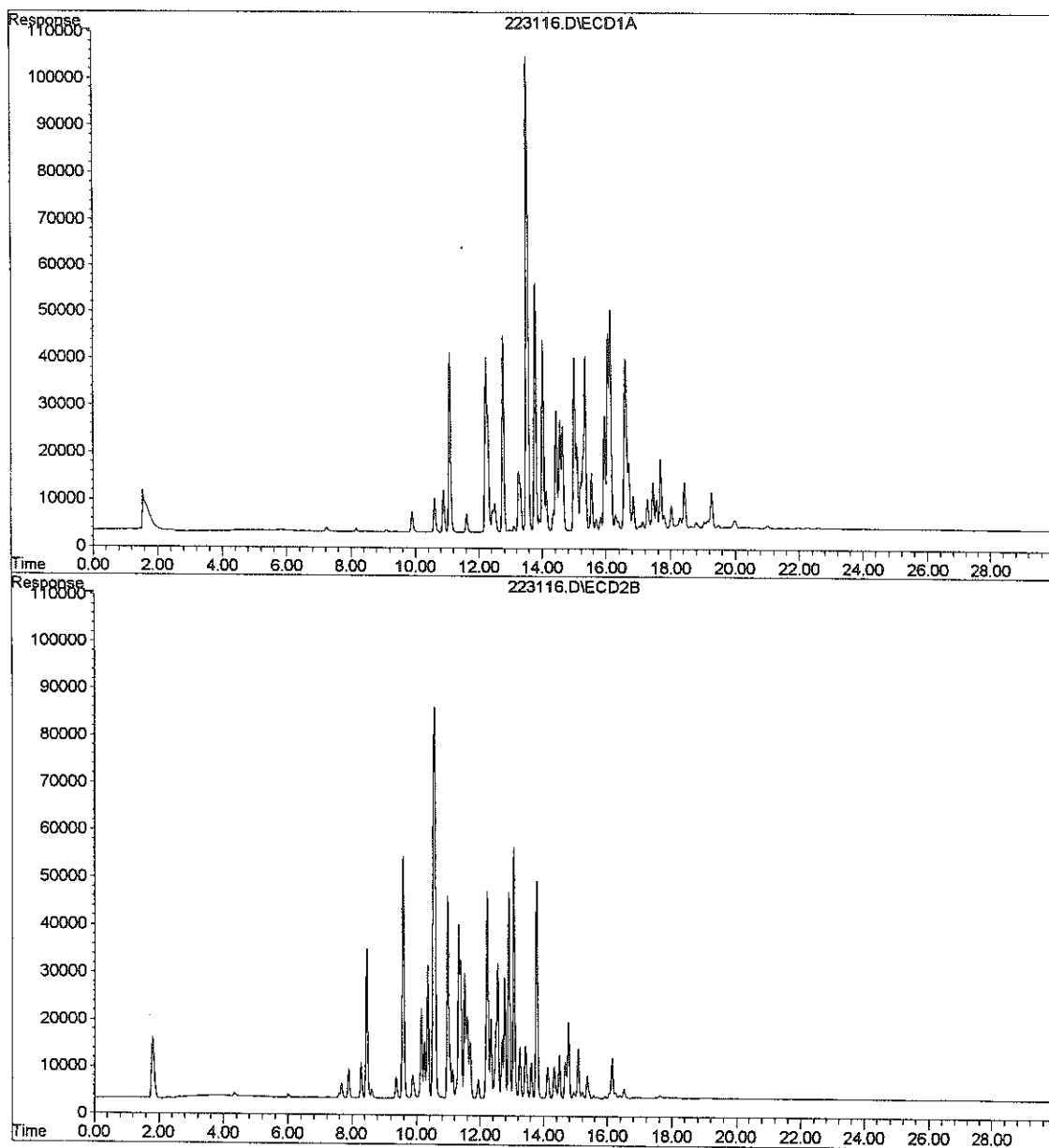


FIGURE 5. Example GC/ECD chromatogram of Aroclor 1248 analyzed on a Rtx-5/HP-608 column pair connected to separate injectors. The top trace is the Rtx-5 column (30-m x 0.53-mm ID, 1.5- μ m film thickness) and the bottom trace is the HP-608 column (30-m x 0.53-mm ID, 0.5- μ m film thickness). Temperature program: 150 $^{\circ}$ C (1.0 min hold) to 280 $^{\circ}$ C (17 min hold) at 8 $^{\circ}$ C/min.

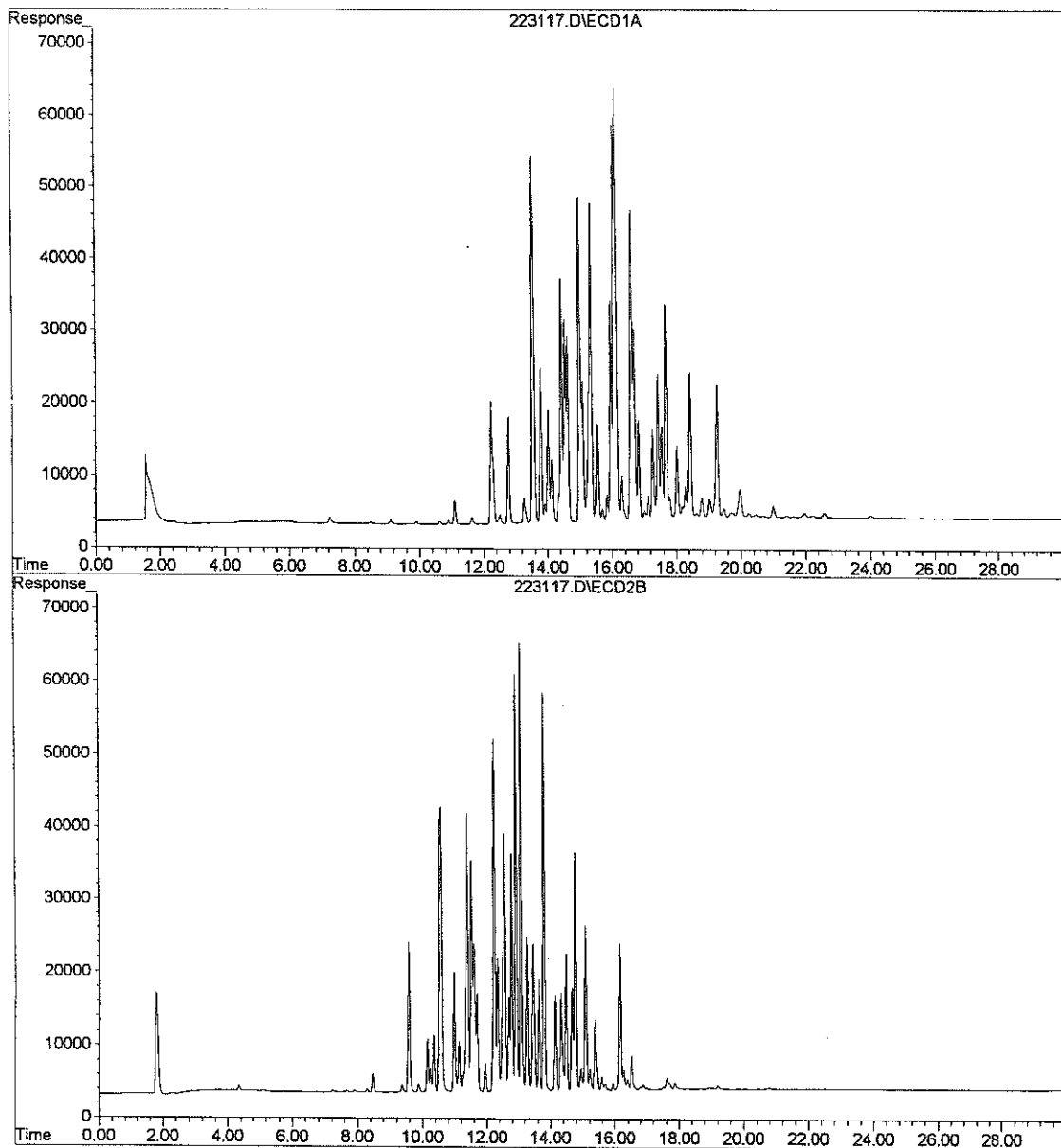
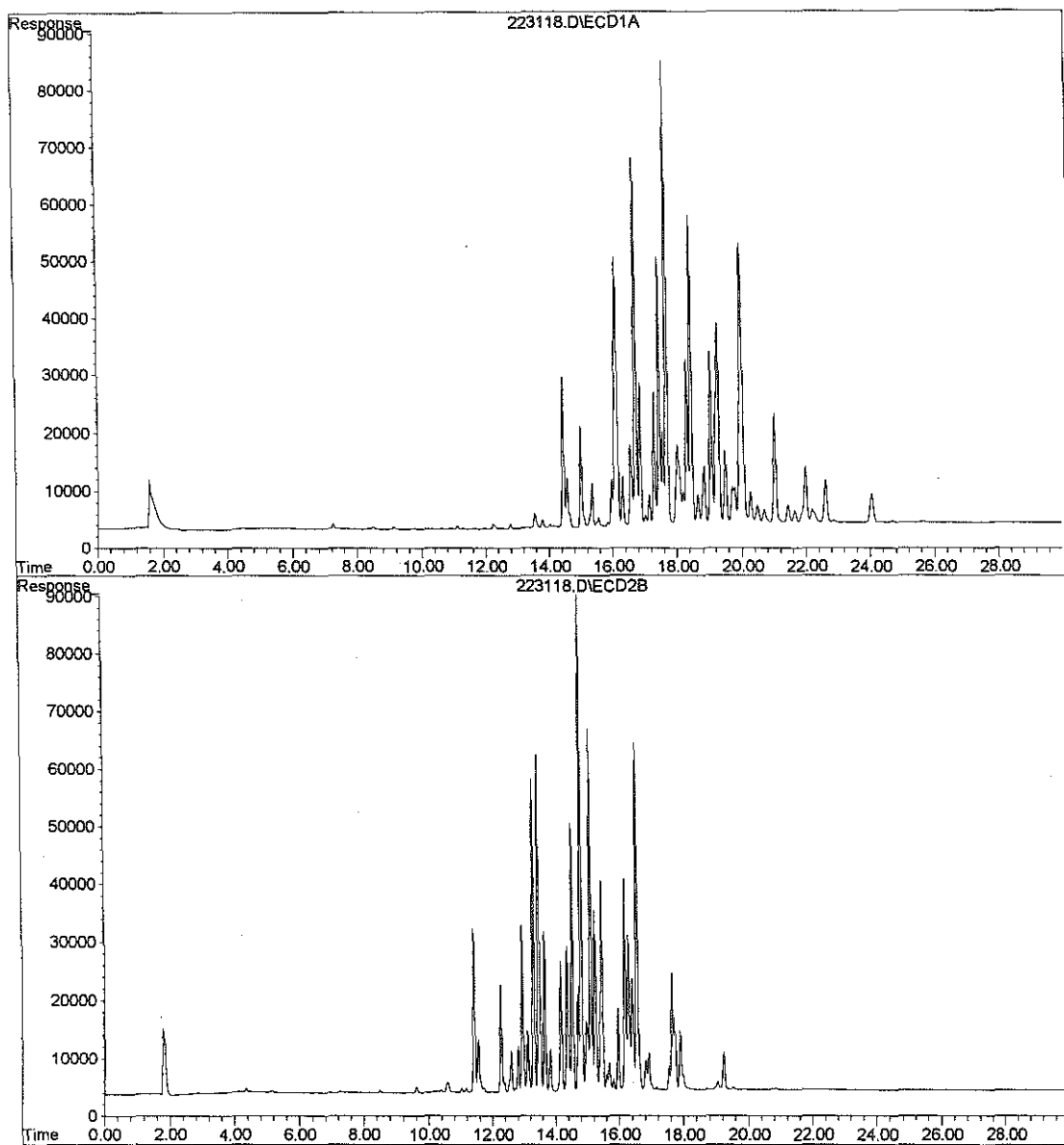


FIGURE 6. Example GC/ECD chromatogram of Aroclor 1254 analyzed on a Rtx-5/HP-608 column pair connected to separate injectors. The top trace is the Rtx-5 column (30-m x 0.53-mm ID, 1.5- μ m film thickness) and the bottom trace is the HP-608 column (30-m x 0.53-mm ID, 0.5- μ m film thickness). Temperature program: 150 °C (1.0 min hold) to 280 °C (17 min hold) at 8 °C/min.



Ortek SPCC NOV Conference - 12/3/2014

Sign-in Sheet

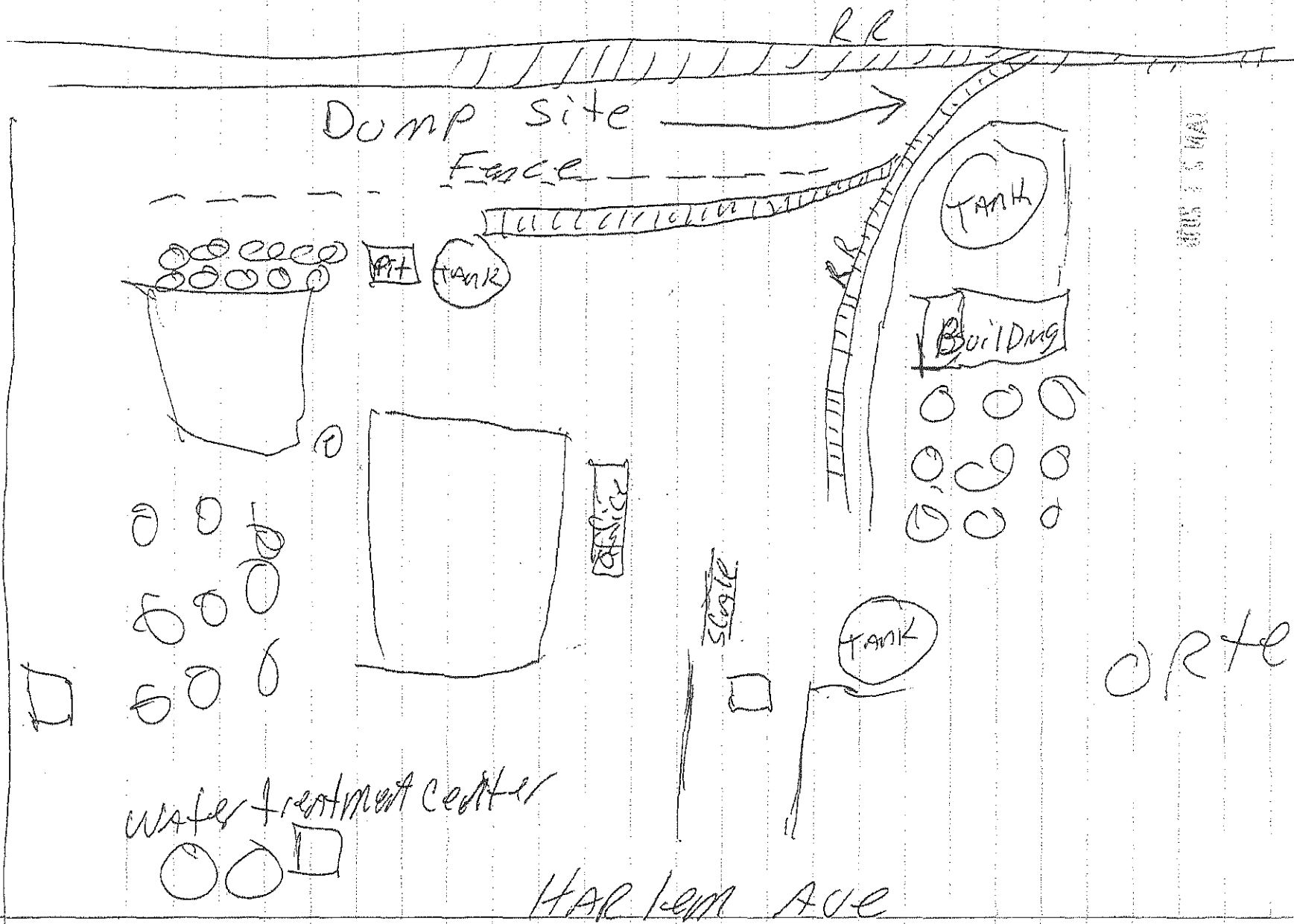
| Name/Title | Representing | Phone/E-mail |
|-------------------------------------|--------------|---|
| ROBERT PEASEY, Assoc. Regl. Counsel | U.S. EPA | (312) 353. 4570 / peasey.robert@epa.gov |
| Tingting Wang, Project Engineer | Weaver Boos | (312) 232-1030 / |
| Lawrie Witter, Office Manager | Ortek, Inc. | 708/762-5117 ltwang@weaverboos.com taylorl557@yahoo.com |
| Lowell Aughenbaugh | Ortek, Inc | 708-762-5117 |
| ANDY PERDUE | WEAVER BOOS | 312-922-1030 / APERDUE@WEAVERBOOS.COM |
| Brian Kennedy | U.S. EPA | (312) 353-4383 |
| Joseph Ufig | US EPA | 312-353-8205 ufig.joseph@epa.gov |

Mr. Peachy

I'm writing this letter to inform you of the Ortel - North American Site. From day one the waste water treatment Area has never worked howell has always dumped his waste water down the sewer with a hidden pipe under ground, But I doubt we can prove that now, he has never paid for any chemicals for the treatment center to prove that it was in use if he does their Fake Audit that Co. He (howell) is very slick. I sent a map were a lot of hazardous material was ~~dumped~~^{Dumped}, all the big piles of waste that came out of the pit was Dumped on the R.R. property. there was a Dumpster to haul it all away But only got one Dumpster, But he said he would get Fake receipts for following Dumpsters There must be 20-30 Semi trucks Dumped in the spot on the map, please advise him that Complaints of a deer was stuck in the soil other wise he will know I'm the

one that told and I don't want
any problems from Mr. Aughenbaugh
or social systems.

They dump the water at Knight
put it in tanks during the day
everyone there knows what's going
on including Laurie Whitter, Bob Kohlar,
North Branch, Future, HAZ Chem or
is it HAZMAT, Key... and all the
other ~~pep~~ companies dump their
need audited to prove of all the
millions of gallons dumped there
then lets see how much or tek
comes up with. he is personal
friends with Jim from Future (owner)
and North Branch in which will write
him or hold cheeks back to hide
he Lowell hides all his money in
the car lot in Missouri. IF the
waste water treatment plant has been
replaced or fixed there is no doubt that
water will still be dumped and money
will be passed under the table
Lowell Aughenbaugh - or tek shouldn't
have or be trusted to our
environment. Good luck



ORTEK

JAN 21 2016

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(312) 627-4085
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233 S. Wacker Drive, 22nd Floor
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www.tresslerllp.com

February 13, 2014

Via Electronic Mail and U.S. Mail

Mr. Robert M. Peachey
Environmental Protection Agency, Region 5
C-14J
77 West Jackson Blvd.
Chicago, IL 60604-3590

RE: Anticipated Document Production by Ortek

Dear Mr. Peachey:

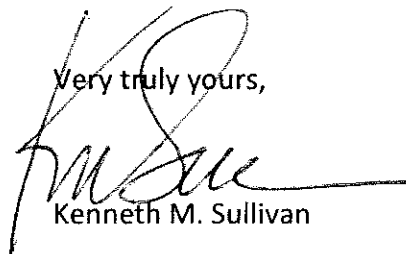
During our meeting at your offices on January 21, 2014, you requested that Ortek produce several categories of documents to the EPA. The following list memorializes the documents Ortek anticipates producing per your requests:

1. Ortek's proposed changes/amendments to the "Draft CAFO"
2. Particulars of the secondary containment dikes built to date
3. Breakdown of costs to build the dikes
4. Invoices detailing materials used in the construction of the dikes
5. Pictures of the secondary containment dikes
6. Plans for tank field depicting the current status of the ground in that area
7. Records for cleaning the tanks
8. Records pertaining to the closure of the tanks
9. Plans for secondary containment in last remaining area
10. Materials for secondary containment
11. Ortek's recent financials, including tax returns from 2010, 2011, and 2012.
12. Pilota documents regarding the existing real estate tax encumbrance and Pilota's purchase of real estate taxes on PIN 18-12-101-011-0000. It is our understanding that Pilota has the ability to go to deed on PIN 18-12-101-011-0000.

Mr. Robert Peachey
February 13, 2014
Page 2

We are currently in the process of organizing and Bates stamping a number of the above-listed documents, including Ortek's most recent tax returns, photographs of the recently constructed secondary containment dikes, and the invoices for the materials used in the construction of the dikes, and anticipate sending these documents to you within the next seven days. If you require documents in addition to those listed above for your analysis, please do not hesitate to contact me.

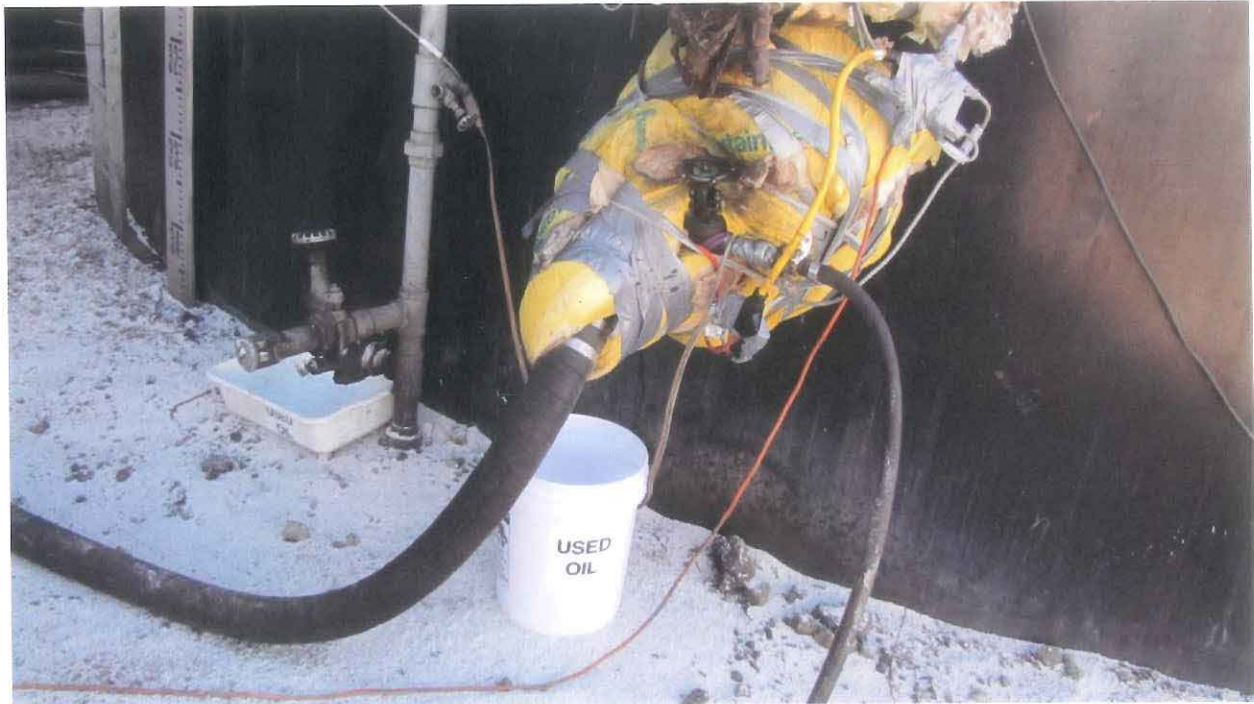
Very truly yours,

A handwritten signature in black ink, appearing to read 'KMS', with a long horizontal flourish extending to the right.

Kenneth M. Sullivan

KMS/#378390

cc: Lowell Aughenbaugh
Lindsey Dean



ORTEK PHOTO 3, 03/27/2013



ORTEK PHOTO 13, 03/27/2013



ORTEK PHOTO 14, 03/27/2013



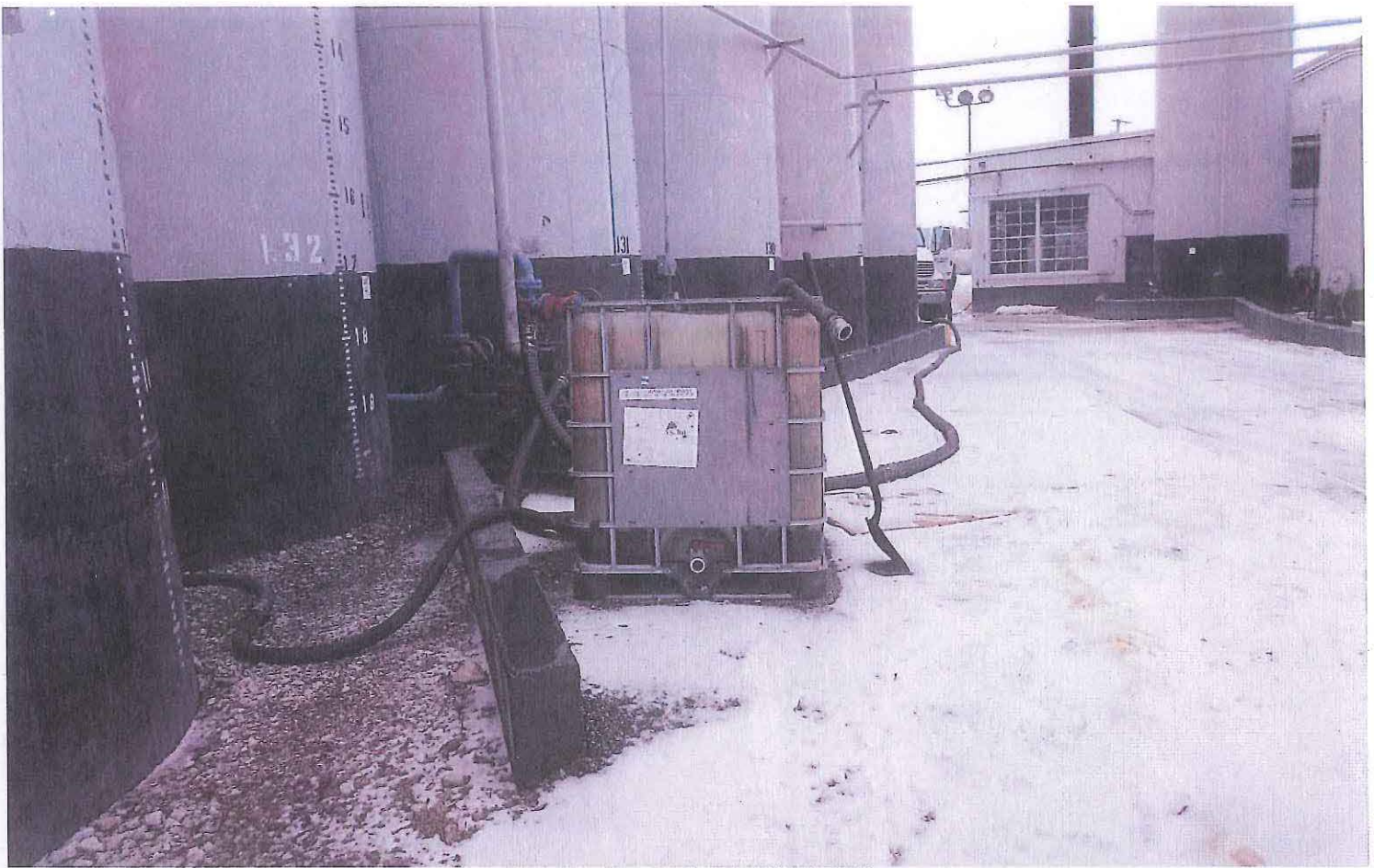
ORTEK PHOTO 15, 03/27/2013



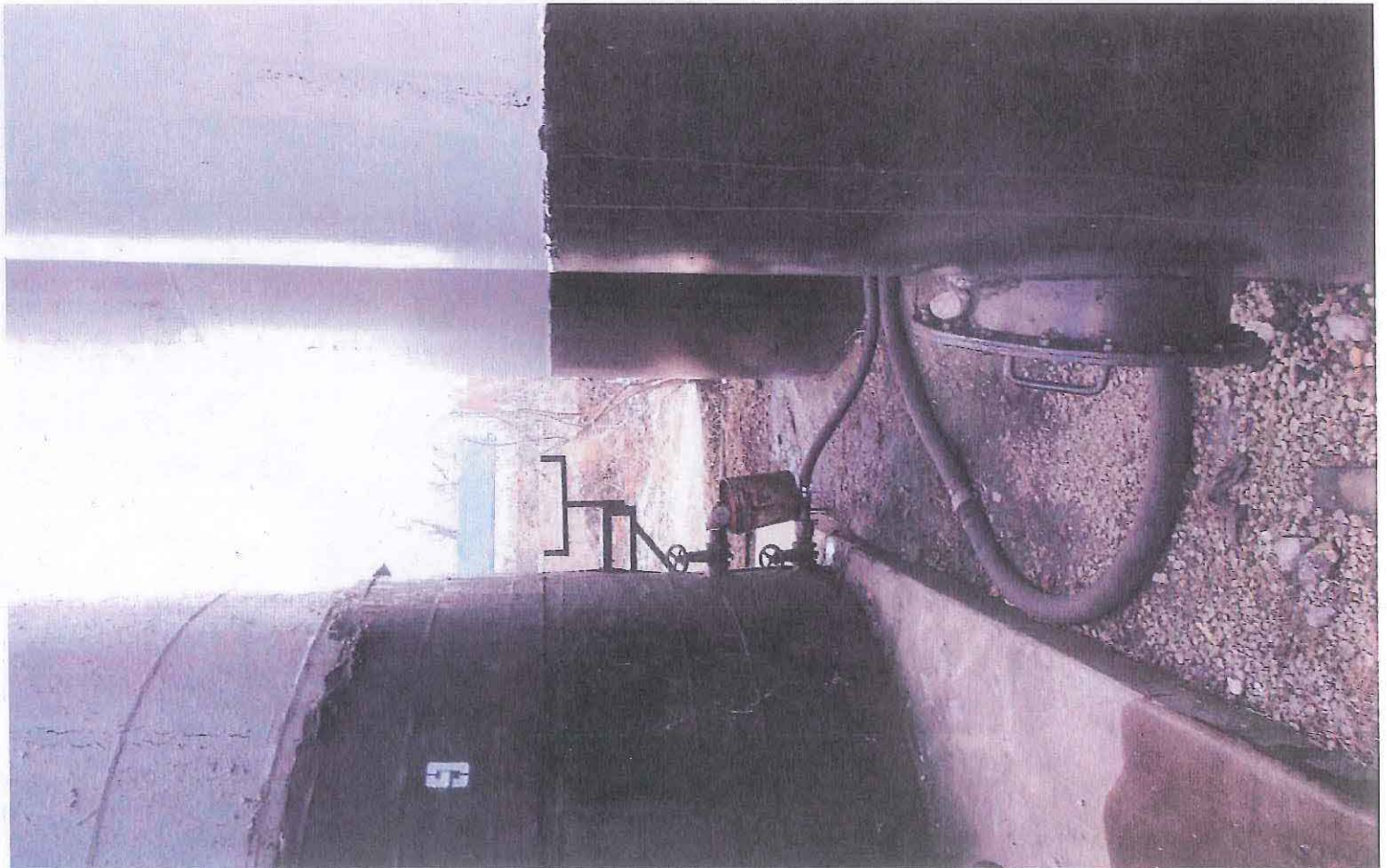
ORTEK PHOTO 16, 03/27/2013



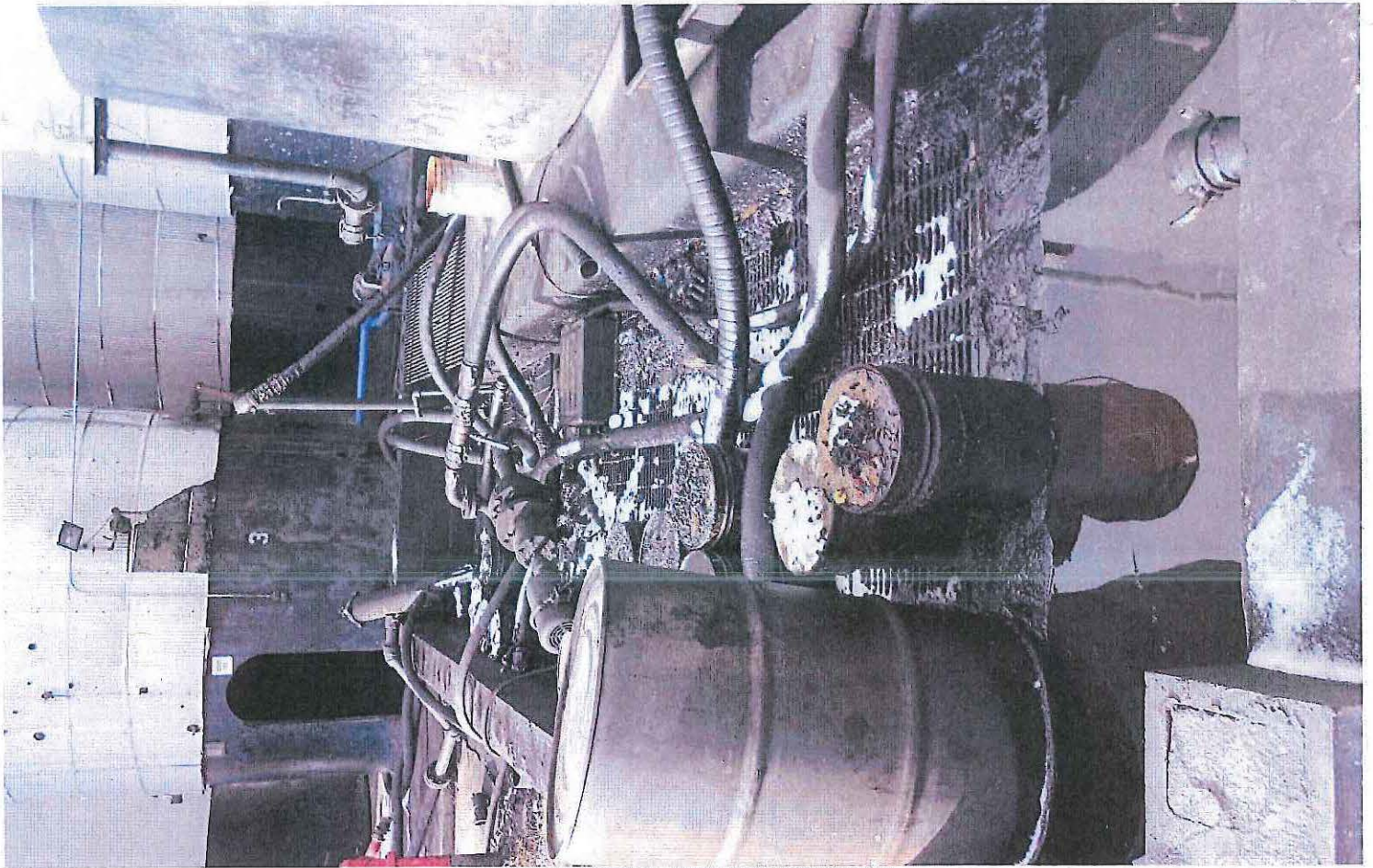
ORTEK PHOTO 49, 03/27/2013



Ortek 48 by Mike Beedle, 2012/01/30 14:36:18



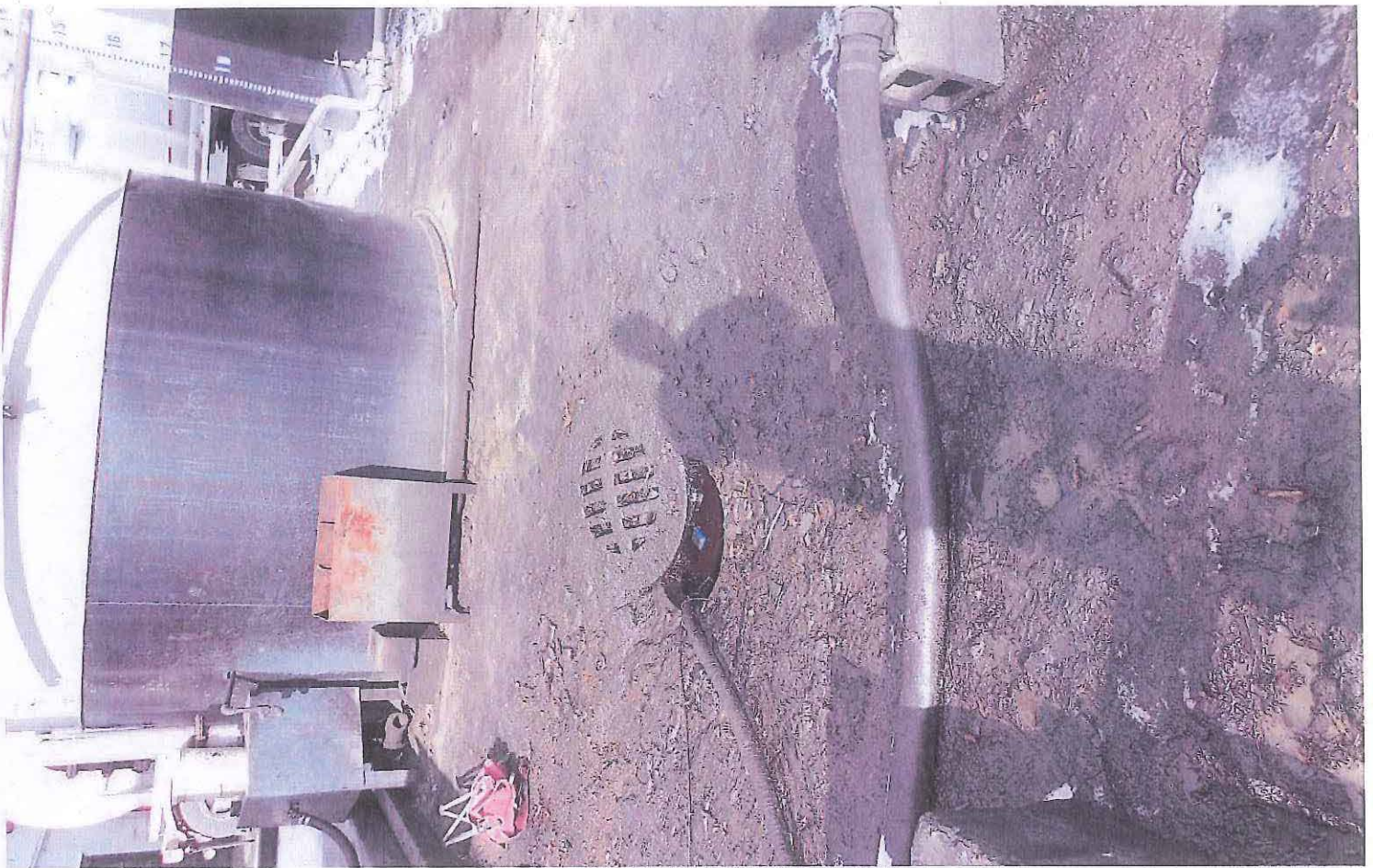
Ortek 49 by Mike Beedle, 2012/01/30 14:36:52



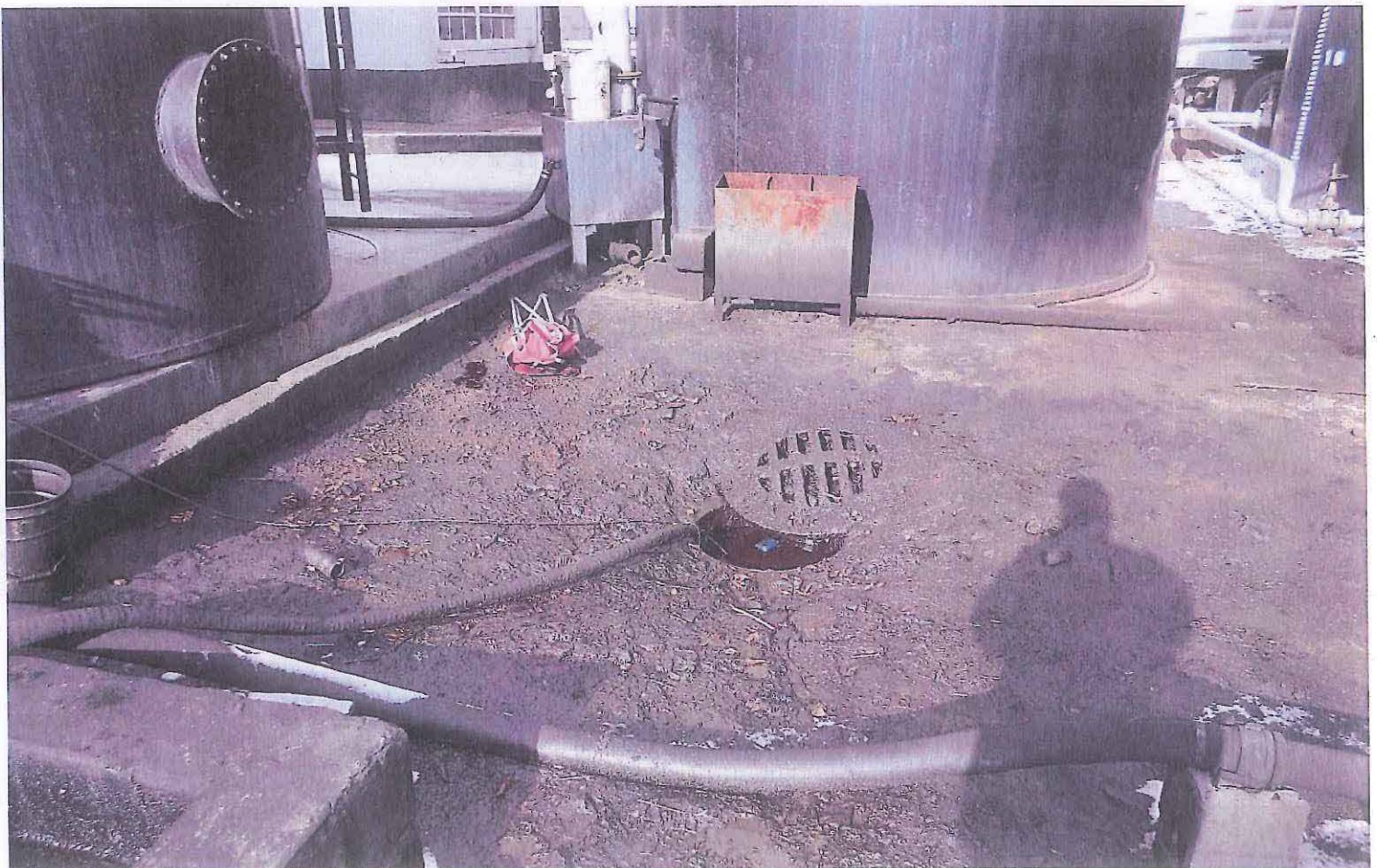
Ortek Photo 15 by Mike Beedle, 2011/12/09 13:55:44



Ortek Photo 16 by Mike Beedle, 2011/12/09 13:55:56



Ortek Photo 13 by Mike Beedle, 2011/12/09 13:54:15



Ortek Photo 14 by Mike Beedle, 2011/12/09 13:55:37



Ortek Photo 03 by Mike Beedle, 2011/12/09 13:35:37



Ortek Photo 04 by Mike Beedle, 2011/12/09 13:35:46

WEAVER

BOOS

CONSULTANTS

April 21, 2014
Proposal No. WNCP-051-12-14

Mr. Lowell Aughenbaugh
Ortek, Inc.
7601 West 47th Street
McCook, Illinois 60525

**Re: Proposal for Environmental Consulting Services
Ortek, Inc.
McCook, Illinois**

Dear Mr. Aughenbaugh:

Weaver Boos Consultants North Central, LLC (Weaver Boos) is pleased to provide Ortek, Inc. (Ortek) with this proposal for environmental consulting services in response to our April 9, 2014 site visit and previous discussions to date.

BACKGROUND

We understand you have received a Notice of Intent to file an Administrative Complaint from the United States Environmental Protection Agency (USEPA) in conjunction with alleged violations of certain provisions of the Resource Conservation and Recovery Act (RCRA). Specifically, we understand Ortek is in need of technical assistance to respond to the alleged violations and work towards a resolution to the matter. Based on the information you have provided to date, we understand the alleged violations involve the following four counts:

- Insufficient secondary containment in accordance with the applicable sections of 35 Illinois Administrative Code (IAC) 739.154 and 40 Code of Federal Register (CFR) 279.54;
- Compliance with the used oil rebuttable presumption pursuant to the applicable sections of 35 IAC 739 and 40 CFR 279;
- Storage of hazardous waste without a permit pursuant to 40 CFR part 270;

- Failure to comply with the hazardous waste storage tank standards pursuant to 35 IAC 725 and 40 CFR 265.

We further understand that Ortek is in receipt of a draft Consent Agreement and Final Order (CAFO) in connection with these allegations and we have reviewed the CAFO in preparation of this proposed Scope of Work. Based on Ortek's review of the CAFO, discussions with counsel, and discussion with USEPA to date they have requested the enclosed Scope of Work. Specifically, we have prepared this Scope of Work to prepare technical responses to alleged counts described above and update Ortek's procedures and practices going forward with respect to the applicable regulations referenced in the CAFO. Our proposed Scope of Work is subdivided by the following tasks and is further described below.

Task 1 – Secondary Containment Assessment

Weaver Boos will perform a site visit to document current conditions of the tank systems identified as tanks 1-10, 100, 101, and 120-146 in the CAFO. During the site visit we will document existing as built conditions of the tanks and associated secondary containment. We will also review available records to evaluate the operational status (i.e., "existing tanks," etc.) of each tank during the times relevant to the alleged violation in addition to their current operational status.

Weaver Boos will provide surveying services on an as-needed basis to document current on-site conditions if as-built information for the tanks and any associated secondary containment is not available. Should surveying be required, Weaver Boos will provide a separate Scope of Work and Cost Estimate to complete the surveying upon determining the on-site features to be documented. Based on the nature and scope of the work to be performed, it may be possible to incorporate this work into any remaining budget.

Upon completing the activities described above, Weaver Boos will document our findings relative the applicable allegations in the CAFO and make recommendations for any corrective measures necessary for the tank systems to comply with the applicable regulatory requirements. Because the nature and scope of these items is not known at this time, this Scope of Work may require revision based on our **Task 1** findings.

Task 2 – Used Oil Rebuttable Presumption

Weaver Boos will review available records from Ortek and any suppliers or vendors and evaluate with respect to the alleged violation. We understand based on our discussions with you that Ortek is pursuing a separate legal matter against one of its suppliers in connection with the used oil rebuttable presumption allegation. Weaver Boos will consider any information available in connection with that legal matter in our review to the extent it's available. We will prepare a written summary of our findings in response to the allegations and make recommendations to Ortek to update its on-going policies and procedures to handle these materials based on our review.

Task 3 – Hazardous Waste Evaluation

Weaver Boos will review and evaluate available records from Ortek and its suppliers, vendors, and/or customers with respect to the alleged violation. We understand based on our discussions with you that Ortek is pursuing a separate legal matter against one of its suppliers in connection with hazardous waste allegation similar to the used oil rebuttable presumption matter described above. Weaver Boos will consider any information available in connection with that legal matter in our review to the extent it is available.

We will prepare a written summary of our findings in response to the allegations and make recommendations to Ortek to update its on-going policies and procedures based on our review. These recommendations may also consist of the preparation additional documentation in accordance with the applicable regulatory requirements concerning hazardous waste based on our review (i.e., tank closure documentation or decontaminations plans, etc.). Weaver Boos will provide a separate Scope of Work and Cost Estimate to complete the any closure documentation (or similar documentation) because the nature and scope of these items is not known at this time.

SCHEDULE

Based on your verbal authorization during our meeting, we have initiated our preliminary activities associated with the tasks described above. We anticipate completing tasks described above within 3-4 weeks. We anticipate several discussions with USEPA representatives throughout the project (via telephone and email) and upon completion of the above reference tasks we will meet with Ortek and USPEA representatives at Region 5 offices to discuss the findings.

COST ESTIMATE

Based upon our understanding of your objectives, our knowledge of the project, and the Scope of Work outlined above, and experience at similar facilities, the proposed Scope of Work can be completed for a not to exceed budget estimate of **\$15,000** as we discussed during our April 9 meeting.

The estimated cost and proposed Scope of Work are based on information available to Weaver Boos at this time. If conditions change, work extends beyond the scheduled completion date, unforeseen circumstances are encountered, or work efforts are redirected, the cost estimate may require modification.

We fully expect to complete the outlined tasks for the stated sum, and this cost will not be exceeded without your prior authorization. You will be invoiced only for the actual work performed on a unit-rate basis in accordance with the previously submitted Fee Schedule. Any services requested beyond those referenced herein will be provided on a Time and Materials basis in accordance with the unit rates shown on the previously submitted Fee Schedule.

AUTHORIZATION

Should this Proposal meet with your objectives, please indicate your authorization to proceed by signing and returning the attached Proposal Acceptance Sheet to our office. Services provided pursuant to this Proposal will be performed pursuant to our standard General Terms and Fee Schedule, which are attached. Any modification to this Proposal or the attached General Terms and Conditions and Fee Schedule must be accepted by both parties.

We appreciate this opportunity to be of service and are looking forward to working with you on this project. If you should have any questions or comments concerning this Work Authorization, please do not hesitate to contact either of the undersigned at 312-922-1030.

Sincerely,

Weaver Boos Consultants North Central, LLC



Andrew S. Perdue
Senior Project Manager

Mr. Lowell Aughenbaugh

April 21, 2014

Page 5

Enclosures: Proposal Acceptance Sheet
General Terms and Conditions
Fee Schedule

WEAVER BOOS CONSULTANTS NORTH CENTRAL, LLC

70 West Madison

Suite 4250

Chicago, Illinois 60602

Voice: 312-922-1030

Fax: 312-922-1030

PROPOSAL ACCEPTANCE SHEET

Description of Services: **Environmental Consulting Services**
Company Name: **Ortek, Inc.**
Property Address: **7601 W. 47th Street**
Project City/State: **McCook, Illinois**
Weaver Boos Proposal No.: **WNCP-051-12-14** Date: **April 21, 2014**

For approval and payment of charges, invoices will be charged to the account of:

Firm: **Ortek, Inc.** Attention: **Lowell Aughenbaugh**
Street Address 1: **7601 W. 47th Street** Telephone: **(708) 762-5117**
Street Address 2: Fax: **(708) 762-5118**
City/State: **McCook, IL**
Zip Code:

This AGREEMENT is subject to the attached General Terms and Conditions Version 2009 – A1 comprising 4 pages and the following special provisions/payment schedule:

Weaver Boos Consultants North Central, LLC Proposal No. WNCP-051-12-14 dated April 21, 2014 and all attachments.

Accepted by:

Weaver Boos Consultants North Central, LLC

Lowell Aughenbaugh
Client

L Aughenbaugh
By (Signature)

Ortek, Inc.
By (Type/Print)

Manager
Title

Accepted April 21, 2014
Acknowledge the Terms and Conditions

By (Signature)

Andrew S. Perdue

By (Type/Print)

Senior Project Manager

Title

Accepted: April 21, 2014
Acknowledge the Terms and Conditions



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

NOV 10 2014

REPLY TO THE ATTENTION OF:

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Lowell Aughenbaugh
President
Ortek, Inc.
7601 West 47th Street
McCook, Illinois 60525

Re: Notice of Violation
Ortek, Inc. — McCook, Illinois

Dear Mr. Aughenbaugh:

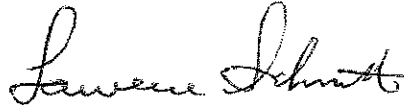
On April 24, 2014, a representative of the U.S. Environmental Protection Agency (EPA) inspected the facilities of Ortek, Inc. (Ortek), a used oil recycler, located at 7601 West 47th Street, McCook, Illinois. The purpose of this inspection was to evaluate Ortek's compliance with, among other things, certain provisions of the Clean Water Act (CWA), which include the oil pollution prevention regulations at 40 C.F.R. Part 112 promulgated under Section 311 of the CWA, 33 U.S.C. § 1321. Based on the information you provided, EPA has determined that Ortek is in violation of certain requirements in 40 C.F.R. Part 112.

Pursuant to Section 311(b) of the CWA, violations of the oil pollution prevention regulations at 40 C.F.R. Part 112 subject owners and operators of a facility to administrative civil penalties of up to \$16,000 per day (up to a maximum of \$187,500), where the violations occur after December 6, 2013. See 40 C.F.R. § 19.4 (Civil Monetary Penalty Inflation Adjustments) and 78 Fed. Reg. 66,643 (Nov. 6, 2013). Any penalty assessed will depend upon the factors listed at 33 U.S.C. § 1321(b)(8), which include your ability to pay the penalty. Pursuant to Section 311(c) of the CWA, 33 U.S.C. § 1321(c), EPA also has the authority to issue an order that would ensure the mitigation or prevention of a substantial threat of a discharge of oil or a hazardous substance.

Before making a demand for a penalty or issuing an order to address Ortek's violations, EPA is offering you the opportunity to request a conference with us about the violations alleged herein. The conference will give you the opportunity to present information on the specific alleged violations, the efforts you have taken to comply, and the steps you will take to prevent future violations. Please plan for your facility's technical and management personnel to attend the conference to discuss compliance measures and commitments. You may have an attorney represent you at this conference.

The technical contact in this matter is Joseph Ulfig, P.E. You may call him at (312) 353-8205 to request a conference. You should make this request as soon as possible, but no later than 10 calendar days after you receive this letter. We should hold any conference within 30 calendar days of your receipt of this Notice of Violation. If you have questions regarding legal aspects of this matter, please contact Robert Peachey, Associate Regional Counsel, at (312) 353-4510.

Sincerely,

A handwritten signature in black ink, appearing to read "Lawrence Schmitt". The signature is fluid and cursive, with a large initial "L" and a stylized "S".

Lawrence Schmitt
Acting Chief
Enforcement and Compliance Assurance Branch

Attachments

NOTICE OF VIOLATION

VIOLATIONS OF THE OIL POLLUTION ACT, 33 U.S.C. § 1321

General Allegations

1. Ortek is the operator of a used oil recycling and storage facility at 7601 West 47th Street, McCook, Illinois, with a total storage capacity in excess of 2.5 million gallons. Operations at the facility began in 1939. The facility is located approximately 200 feet from the Des Plaines River, a navigable waterway, and associated wildlife and sensitive areas.
2. Ortek is the owner and operator of a facility, with an aggregate above ground oil storage capacity over 1,320 gallons, engaged in storing, processing, distributing, using or consuming oil and oil products. Ortek's facility, due to its location, could reasonably be expected to discharge oil in quantities that may be harmful, as described in 40 C.F.R. Part 110, into or upon the navigable waters of the United States. Ortek's facility is therefore subject to 40 C.F.R. Part 112, Subparts A and B.
3. Ortek is the owner and operator of a facility that has a maximum oil storage capacity greater than one million gallons and that is located at a distance such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments, as the relevant terms are defined in 40 C.F.R. § 112.2. Ortek is therefore subject to 40 C.F.R. Part 112, Subpart D.
4. 40 C.F.R. § 112.3 requires owners or operators of facilities subject to 40 C.F.R. Part 112 to prepare in writing and implement a Spill Prevention, Control and Countermeasure Plan ("SPCC Plan" or "Plan").
5. 40 C.F.R. § 112.7(a)(1) requires owners or operators of facilities subject to 40 C.F.R. Part 112 to include in their Plan a discussion of their facility's conformance with the requirements listed in this part.
6. 40 C.F.R. § 112.8(a) requires owners or operators of facilities subject to 40 C.F.R. Part 112 to meet the general requirements for the Plan listed under § 112.7.
7. At the time of the April 24, 2014 inspection, Ortek maintained a SPCC Plan with a revision date of February 2013, and did not possess a Facility Response Plan (FRP).

Alleged Violations

8. 40 C.F.R. § 112.3(d) requires a licensed Professional Engineer to review and certify a SPCC Plan, and to also attest to several statements, for the certification to be effective. At the time of the inspection, Ortek's SPCC Plan did not have a certification by a licensed Professional Engineer that attested to each of the statements required by the regulation, in violation of 40 C.F.R. § 112.3(d).
9. 40 C.F.R. § 112.5(b) requires that SPCC Plans be reviewed and evaluated at least once every five years. Ortek's SPCC Plan notes that a review and plan revision was done in February

of 2013. However, Ortek's SPCC Plan has not been revised to reflect the SPCC rule changes that came into effect on November 10, 2010. This failure to update the facility's SPCC plan is a violation of 40 C.F.R. § 112.5(b).

10. 40 C.F.R. § 112.7 requires that SPCC Plans have the full approval of management at a level of authority to commit the necessary resources to fully implement the Plan. Ortek's SPCC Plan does not contain a statement by Ortek's management as required by the regulation, in violation of 40 C.F.R. § 112.7.

11. 40 C.F.R. § 112.7(a)(3) and 112.7(a)(3)(i) require that SPCC Plans describe the physical layout of the facility and include a diagram that identifies: the location, capacity, and contents of all regulated fixed oil storage containers, among other requirements. Ortek's SPCC Plan does not describe nor contain a diagram that identifies the location and contents of all regulated fixed oil storage containers, in violation of 40 C.F.R. §§ 112.7(a)(3) and 112.7(a)(3)(i).

12. 40 C.F.R. § 112.7(a)(3)(ii) requires that discharge prevention measures, including procedures for routine handling of products be described in a SPCC Plan. Ortek's SPCC Plan does not describe discharge prevention measures, or procedures for routine handling of products, in violation of 40 C.F.R. §§ 112.7(a)(3)(ii) and 112.7(a)(1).

13. 40 C.F.R. § 112.7(a)(3)(iii) requires that discharge or drainage controls and other structures, equipment, and procedures for the control of a discharge be described in a SPCC Plan. Ortek's SPCC Plan does not describe discharge or drainage controls and other structures, equipment, and procedures for the control of a discharge, in violation of 40 C.F.R. §§ 112.7(a)(3)(iii) and 112.7(a)(1).

14. 40 C.F.R. § 112.7(a)(4) requires that SPCC Plans contain information and procedures that enable a person reporting an oil discharge as described in 40 C.F.R. § 112.7(1)(b) to report various information related to a discharge event. Ortek's SPCC Plan does not contain the required information and procedures, in violation of 40 C.F.R. §§ 112.7(a)(4) and 112.7(a)(1).

15. 40 C.F.R. § 112.7(a)(5) requires that SPCC Plans be organized so that portions describing procedures to be used when a discharge occurs will be readily usable in an emergency. Ortek's SPCC Plan does not contain the required information and procedures for reporting discharge events, nor is organized to be readily usable in an emergency, in violation of 40 C.F.R. §§ 112.7(a)(4) and 112.7(a)(1).

16. 40 C.F.R. § 112.7(b) provides that where experience indicates a reasonable potential for equipment failure, the Plan must include a prediction of the direction, rate of flow, and total quantity of oil which could be discharged from the facility as a result of each type of major equipment failure. Ortek's Plan did not include an adequate prediction of the direction, rate of flow, and total quantity of oil which could be discharged from the facility as a result of each type of major equipment failure, in violation of 40 C.F.R. §§ 112.7(b) and 112.7(a)(1).

17. 40 C.F.R. § 112.7(c) requires that appropriate containment and/or diversionary structures or equipment to prevent a discharge as described in 40 C.F.R. § 112.1(b) be provided. During the

April 2014 inspection, it was observed that Ortek did not provide secondary containment structures for the facility's bulk oil storage containers or oil-filled equipment, nor did its Plan contain a discussion of the facility's conformance with this requirement, in violation of 40 C.F.R. §§ 112.7(c) and 112.7(a)(1).

18. 40 C.F.R. § 112.7(e) requires that inspections and tests be conducted in accordance with written procedures. Ortek's plan did not detail how inspections and tests must be conducted, in violation of 40 C.F.R. §§ 112.7(e) and 112.7(a)(1).

19. 40 C.F.R. § 112.7(g) requires that owners or operators secure and control access to the oil handling, processing and storage areas; secure master flow and drain valves; prevent unauthorized access to starter controls on oil pumps; secure out-of-service and loading/unloading connections of oil pipelines; and address the appropriateness of security lighting to both prevent acts of vandalism and assist in the discovery of oil discharges. Ortek's facility does not possess a continuous perimeter fence that would deter entry to the facility, as stated in the Facility's SPCC Plan, nor does it have sufficient outdoor lighting to deter vandalism or assist in the discovery of oil discharges, in violation of 40 C.F.R. § 112.7(g).

20. 40 C.F.R. § 112.7(i) requires that, if a field-constructed aboveground container undergoes a repair, alteration, reconstruction, or a change in service that might affect the risk of a discharge or failure due to brittle fracture or other catastrophe, or has discharged oil or failed due to brittle fracture failure or other catastrophe, the container be evaluated for risk of discharge or failure due to brittle fracture or other catastrophe, and as necessary, take appropriate action. Ortek's SPCC Plan did not address this portion of the regulation, in violation of 40 C.F.R. §§ 112.7(i) and 112.7(a)(1).

21. 40 C.F.R. § 112.7(k) requires that the owner or operators of facilities with oil-filled operational equipment provide secondary containment for this equipment pursuant to 40 C.F.R. § 112.7(c), or undertake the alternate requirements of paragraph 40 C.F.R. § 112.7(k)(2), if qualified. Ortek's SPCC Plan does not address the facility's conformance with either method of compliance for its oil-filled operational equipment, in violation of 40 C.F.R. §§ 112.7(c) or 112.7(k), and 112.7(a)(1).

22. 40 C.F.R. § 112.8(b)(3) and (4) requires that drainage from undiked areas be designed to retain oil or return it to the facility in the event of a discharge. Ortek's SPCC Plan does not adequately describe how drainage from undiked areas is designed to be retained or return to the facility, in violation of 40 C.F.R. §§ 112.8(b)(3) or (4), and 112.8(a).

23. 40 C.F.R. § 112.8(c)(2) requires that all bulk storage tank installations be constructed with secondary containment to hold the capacity of the largest container with sufficient freeboard for precipitation, and that diked areas are sufficiently impervious to contain an oil discharge. Ortek's facility does not provide sufficient secondary containment for each of its containers, nor does its SPCC Plan address whether the diked areas are sufficiently impervious to contain an oil discharge, in violation of 40 C.F.R. §§ 112.8(c)(2) and 112.8(a).

→ Volumetric requirements stricter than what 279 would require, but would accomplish the goals of 279

24. 40 C.F.R. § 112.8(c)(6) requires, among other things, that the owner or operator of an onshore facility test or inspect each aboveground container for integrity on a regular schedule and whenever material repairs are made. The SPCC Plan must include: the appropriate qualifications for personnel performing tests and inspections; the frequency and type of testing and inspections, which take into account container size, configuration, and design; as well as frequent inspections of the outside of the container for signs of deterioration, discharges, or accumulation of oil inside diked areas. Ortek's SPCC Plan did not address any of the required information related to integrity testing in accordance with industry standards, in violation of 40 C.F.R. §§ 112.8(c)(6) and 112.8(a).

25. 40 C.F.R. § 112.8(c)(11) requires that mobile or portable containers be positioned to prevent a discharge as described in 40 C.F.R. § 112.1(b), and that they have secondary containment. Ortek's SPCC Plan did not address this section of the regulation, in violation of 40 C.F.R. §§ 112.8(c)(6) and 112.8(a).

26. 40 C.F.R. § 112.20(a)(1) requires the owner or operators of facilities subject to 40 C.F.R. Part 112, Subpart D, that were in operation on or before February 18, 1993 prepare and submit a facility response plan no later than February 18, 1995 that satisfies the requirements of 33 U.S.C. 1321(j)(5). During the April 2014 inspection, Ortek representatives stated that no FRP was present at the facility or in possession of the facility operators at that time. This is a violation of 40 C.F.R. § 112.20(a)(1).

27. Appendix C to Part 112, Section 3.0 – Certification For Facilities That Do Not Pose Substantial Harm, requires owners or operators of facilities that do not meet the substantial harm criteria listed in Attachment C-I to complete and maintain at the facility the certification form contained in Attachment C-II. At the time of the inspection, Ortek maintained a C-II form that did not properly indicate that the facility does not have secondary containment sufficiently large to contain the capacity of the largest aboveground tank at the facility plus sufficient freeboard for precipitation, nor that the facility is located at a distance such that a discharge could cause injury to fish and wildlife and sensitive environments, in violation of Section 3.0 of Appendix C to 40 C.F.R. Part 112.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

SEP 03 2013

CERTIFIED MAIL 7009 1680 0000 7679 6101
RETURN RECEIPT REQUESTED

REPLY TO THE ATTENTION OF:

Mr. Lowell Aughenbaugh
President
Ortek, Inc.
7601 West 47th Street
McCook, Illinois 60525

Re: Notice of Intent to File Civil Administrative Complaint against
Ortek, Inc.
EPA ID No.: ILD000646786

Dear Mr. Aughenbaugh:

The U. S. Environmental Protection Agency (EPA) plans to file an administrative complaint for civil penalties against Ortek, Inc. ("Ortek" or "you"). We will allege that you violated the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §§ 6901 - 6992k, as amended, as described in the enclosed Notice of Violation previously issued to you on January 24, 2013. RCRA provides a cradle-to-grave framework to ensure proper management of hazardous wastes and used oil which, if handled in an unsafe manner, could present risks to humans and the environment. This letter also informs you that EPA deems Ortek to be a Significant Non-Complier under RCRA.

Based on information currently available to us, we plan to propose a penalty of \$512,437 in the complaint. This letter is not a demand to pay a penalty. We will not ask you to pay a penalty until we file the complaint or a final order. Before filing the complaint, we are giving you the opportunity to present any information that you believe we should consider. Relevant information might include evidence that you did not violate the law; evidence that you relied on compliance assistance from EPA or a state agency; evidence that we identified the wrong party; or financial data bearing on your ability to pay a penalty.

If you believe that you will be unable to pay a \$512,437 penalty because of financial reasons, please send us certified, complete financial statements including balance sheets, income statements and all notes to the financial statements, and your company's signed income tax returns with all schedules and amendments for the past three years. Also, please complete the enclosed Form 4506-T (print form from <http://www.irs.gov/pub/irs-pdf/f4506t.pdf>) authorizing the Internal Revenue Service to release transcripts of your tax returns for the past same three years.

Also, as part of a settlement, you may voluntarily propose to undertake an environmentally beneficial project related to the violation(s) in exchange for mitigation of the penalty. A

Supplemental Environmental Project (SEP) furthers EPA's goal of protecting and enhancing public health and the environment. See this EPA web link for information on SEPs:
<http://www.epa.gov/enforcement/sep.html>.

You may assert a claim of business confidentiality under 40 C.F.R. Part 2, Subpart B, for any portion of the information you submit to us. Information subject to a business confidentiality claim is available to the public only to the extent allowed by 40 C.F.R. Part 2, Subpart B. If you fail to assert a business confidentiality claim, EPA may make all submitted information available, without further notice, to any member of the public who requests it.

Within 10 calendar days after you receive this letter, please send any written response to:

Brian Kennedy
U.S. Environmental Protection Agency
Region 5 (LR-8J)
77 West Jackson Boulevard
Chicago, Illinois 60604

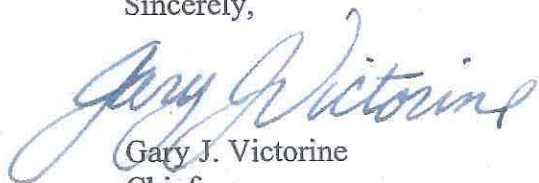
If you want to confer with us, you should contact Brian Kennedy, of the RCRA Branch, in writing within 10 calendar days after you receive this letter. Please be advised that this conference is not a settlement negotiation covered by Federal Rule of Evidence 408; we may use any information you submit in support of an administrative, civil or criminal action. After or during the conference (or after you have submitted a written reply if we do not have a conference), we may give you the opportunity to engage in settlement negotiations before we file the complaint. If pre-filing settlement negotiations commence and are successful, a settlement agreement can be filed under EPA regulations at 40 C.F.R. § 22.13(b).

If you do not respond to this letter, EPA may file a complaint without further notice against Ortek as authorized under Section 3008(a) of RCRA, 42 U.S.C. § 6928(a).

If you have any questions, please telephone Robert M. Peachey, Associate Regional Counsel, at (312) 353-4510.

Thank you for your prompt attention to this matter.

Sincerely,



Gary J. Victorine
Chief,
RCRA Branch

Enclosures

cc: Anna VanOrden, IEPA – Des Plaines District Office (anna.vanorden@illinois.gov)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

JAN 24 2013

REPLY TO THE ATTENTION OF:

CERTIFIED MAIL 7009 1680 0000 7669 2564
RETURN RECEIPT REQUESTED

Mr. Lowell Aughenbaugh
President
Ortek, Inc.
7601 West 47th Street
McCook, Illinois 60525

Re: Notice of Violation
Compliance Evaluation Inspection
EPA I.D. No.: ILD000646786

Dear Mr. Aughenbaugh:

On December 9, 14 and 21, 2011 and January 30, 2012, a representative of the U.S. Environmental Protection Agency (EPA) inspected Ortek, Inc. (hereinafter "Ortek" or "you") located in McCook, Illinois. The purpose of the inspection was to evaluate Ortek's compliance with certain requirements of the Resource Conservation and Recovery Act (RCRA), specifically, those regulations regarding the generation, treatment and storage of hazardous waste, including used oil. We have enclosed a copy of the inspection report and checklists for your reference.

Based on information provided by Ortek personnel, a review of records, a follow-up request for information dated September 12, 2012, and physical observations made by the inspector at the time of the investigation, EPA has determined that Ortek is in violation of hazardous waste management requirements of the Illinois Administrative Code (IAC) and the United States Code of Federal Regulations (CFR). Specifically, EPA finds that Ortek failed to meet the requirements of a used oil processor, and is in violation of the following regulations:

1. In order to operate as a used oil processor, owners or operators must have a contingency plan for the facility designed to minimize hazards to human health and the environment from fires, explosions, or any unplanned sudden or non-sudden release of used oil to air, soil or surface water. See 35 IAC § 739.152(b)(1)(A) [40 CFR § 279.52(b)(1)(i)]. However, if the owner or operator has already prepared a Spill Prevention, Control, and Countermeasures (SPCC) Plan, the owner or operator need only amend that plan to incorporate used oil management provisions that are sufficient to comply with the requirements of a 35 IAC § 739.152(b). See 35 IAC § 739.152(b)(2)(B) [40 CFR § 279.52(b)(2)(ii)].

At the time of inspection, Ortek presented a copy of their SPCC plan. However, the SPCC plan was not amended to comply with the provisions of a contingency plan contained in IAC § 739.152(b)(2) [40 CFR § 279.52(b)(2)], nor was there a separate contingency plan available. Ortek, therefore, failed to meet the general facility standards of a used oil processor and is in violation of the abovementioned requirement.

2. In order to operate as a used oil processor, containers used to store or process used oil must be equipped with a secondary containment system which has at a minimum, dikes, berms or retaining walls as well as a floor that must cover the entire area within the dike, berm or retaining wall. See 35 IAC § 739.154(c)(1)(A) [40 CFR § 279.54(c)(1)]. It is also required that the entire containment system, including walls and floor, must be sufficiently impervious to used oil to prevent any used oil released from the containment system from migrating out the system to the soil, groundwater or surface water. See 35 IAC § 739.154(c)(2) [40 CFR § 279.54(c)(2)].

At the time of inspection, two 5-gallon pails and one 55-gallon drum of used oil near the off-loading pump near the 500 series tanks were not in secondary containment. Additionally, numerous totes with used oil near Tanks 100 and 101 sat on a concrete pad without secondary containment. Ortek, therefore, failed to comply with used oil management standards and is in violation of the abovementioned requirements.

3. In order to operate as a used oil processor, existing aboveground tanks must have a secondary containment system which has at a minimum, dikes, berms, or retaining walls and a floor that must cover the entire area within the dike, berm, or retaining wall except areas where existing portions of the tank meet the ground. See 35 IAC § 739.154(d)(1)(A) [40 CFR § 279.54(d)(1)]. It is also required that the entire containment system, including walls and floor, must be sufficiently impervious to used oil to prevent any used oil released into the containment system from migrating out the system to the soil, groundwater, or surface water. See 35 IAC § 739.154(d)(2) [40 CFR § 279.54(d)(2)].

At the time of inspection, Tanks 1-10, 100, 101, and 120-146 were not in secondary containment sufficiently impervious to prevent used oil from reaching soil. Additionally, an open-top tank covered with a tarp and plywood near the train tracks along the southern border of the facility contained used oil and was not in secondary containment. Ortek, therefore, failed to comply with used oil management standards and is in violation of the abovementioned requirements.

4. In order to operate as a used oil processor, containers and aboveground tanks used to store used oil at processing facilities must be labeled or marked clearly with the words "Used Oil." See 35 IAC § 739.154(f)(1) [40 CFR § 279.54(f)(1)].

At the time of inspection, a bucket catching drippings from Tank 101 was not labeled "Used Oil." Numerous buckets and one 55-gallon drum near the triple basin were not labeled "Used Oil." Various 5-gallon buckets and one 55-gallon drum near the off-

loading area by Tanks 1-10 and 120-146 were not labeled "Used Oil." Two 5-gallon pails and one 55-gallon drum near the 500-series tanks were not labeled "Used Oil."

Additionally, oily debris observed in a truck bed was transferred to a nearby tote and 55-gallon drum over the course of the inspection. However, the tote and 55-gallon drum were not labeled "Used Oil." Ortek, therefore, failed to comply with used oil management standards and is in violation of the abovementioned requirements.

5. To ensure that used oil is not a hazardous waste under the rebuttable presumption of 35 IAC § 739.110(b)(1)(B), the owner or operator of a used oil processing facility must determine whether the total halogen content of used oil managed at the facility is above or below 1,000 ppm. See 35 IAC § 739.153(a) [40 CFR § 279.53(a)]. The owner or operator must make this determination by testing the used oil, or applying knowledge of the halogen content of the used oil in light of the materials or processes used. See 35 IAC §§ 739.153(b)(1) and (2) [40 CFR §§ 279.53(b)(1) and (2)].

At the time of inspection, Ortek presented their "Waste Analysis Plan," which contains a "Material Profile Sheet" that must be completed for all incoming used oil streams. Part J of the "Material Profile Sheet" mentions the rebuttable presumption for used oil, but it does not request a total halogen determination for the used oil or request a basis for knowledge of the used oil's halogen content. Part J also does not provide a location where total halogens may be recorded, nor is there a location elsewhere on the sheet. Total Halogens are not mentioned elsewhere on the "Material Profile Sheet."

Additionally, Part C of the "Material Profile Sheet" requests general information of the process that generated the used oil, but does not request any information or documentation about the process or its materials used that could lead to an accurate determination of the used oil's halogen content, e.g., the chemical composition of the virgin oil, whether used oil from the same process had been previously analyzed and where to find such information, a certification from the generator that the total halogen content of the used oil is below 1,000 ppm, or if the used oil had been mixed with other waste streams on the generator's site.

Information requested on the "Material Profile Sheet" does not allow Ortek to properly apply knowledge of the halogen content of the used oil in light of the materials or processes used, nor is it adequate to rebut the presumption of used oil mixture with halogenated hazardous waste listed in Subpart D of 35 IAC § 721 [Subpart D of 40 CFR Part 261]. Ortek, therefore, is in violation of the abovementioned requirements.

6. In order to operate as a used oil processor, owners or operators must ensure that used oil managed at the facility is not a hazardous waste by determining whether the total halogen content is above or below 1,000 ppm. If the used oil contains greater than or equal to 1,000 ppm total halogens, it is presumed to be a hazardous waste because it has been mixed with halogenated hazardous waste. The owner or operator may rebut this

presumption by demonstrating that the used oil does not contain hazardous waste. See 35 IAC §§ 739.153(a) and (c) [40 CFR §§ 279.53(a) and (c)].

Test results performed by Ortek on several watery oil streams indicate concentrations of total halogens over 1,000 ppm. On October 5, 2011, a "Daily Received Log Used Oils" sheet indicates that a 3,500 gallon shipment from International Titanium Powder had a chlorine concentration of 7,650 ppm (Ticket # 96760). On October 12, 2011, another "Daily Received Log Used Oils" sheet indicated three shipments also had chlorine concentrations over 1,000 ppm:

- Ticket # 96817 - 2900 gallons from Switch Craft with 3,899 ppm chlorine
- Ticket # 96819 - 4800 gallons from Laser Technology with 3,288 ppm chlorine
- Ticket # 96821 - 850 gallons from HazChem with 1,935 ppm chlorine

All shipments above were placed in Tank 101. At the time of inspection, no information was available to rebut the presumption that the above materials were not mixed with halogenated hazardous wastes. In response to an information request on November 12, 2012, Ortek could provide EPA no further information on these shipments. Ortek could not demonstrate the used oil was not mixed with halogenated hazardous waste and is therefore in violation of the abovementioned requirement.

7. In order to operate as a used oil processor, owners or operators must develop and follow a written used oil analysis plan describing the procedures that will be used to comply with the analysis requirements of the rebuttable presumption for used oil and, if applicable, on-specification used oil fuel. See 35 IAC § 739.155(a) and (b) [40 CFR § 279.55(a) and (b)]. When sample analyses are used to make the determination of used oil as on-specification fuel, the analysis plan must describe the method by which representative samples will be obtained, the location of the sampling and its frequency, and the methods used to analyze used oil for the parameters specified in 35 IAC § 739.172 [40 CFR § 279.72]. See 35 IAC §§ 739.155(b)(2)(A)-(D) [40 CFR §§ 279.55(b)(2)(i)-(iv)].

On November 12, 2012, EPA received Ortek's most recent "Waste Analysis Plan." As outlined in Violation 5 above, the "Material Profile Sheet" in the "Waste Analysis Plan" is not adequate to rebut the presumption of used oil mixture with halogenated hazardous waste because the sheet does not request total halogen content or related knowledge. Additionally the section "Outgoing On-Spec Used Oil Analysis Plan" does not describe the method by which representative samples will be obtained, the frequency of sampling, or the analytical method and location by which used oil will be tested to meet the parameters of IAC § 739.172 [40 CFR § 279.72]. Descriptions in the "Waste Analysis Plan" are not suitable to comply with the analysis requirements above. Ortek, therefore, is in violation of this requirement.

8. In order to operate as a used oil processor, the facility must be maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden

release of used oil to air, soil, or surface water which could threaten human health or the environment. See 35 IAC § 739.152(a)(1) [40 CFR § 279.52(a)(1)].

At the time of inspection, oil-stained soils were observed near Tanks 120-146. Oil-stained soils were also observed near the triple-basin area and lift-station, and in between Tanks 9 and 133. Ortek, therefore, is in violation of the abovementioned requirement for the general facility standards of used oil processors.

9. No person may conduct any hazardous waste storage, hazardous waste treatment, or hazardous waste disposal without a RCRA permit. See IAC § 703.121(a)(1). Accordingly, owners or operators of hazardous waste management units, including tanks which store hazardous waste, must have permits during the active life of the unit. See IAC § 703.121(b) [40 CFR § 270.1(c)].

At the time of inspection, eight hazardous waste manifests indicated the off-site shipment of D001, D008, and D039 hazardous waste from Ortek Tanks 120, 122, and 146. The manifests were:

- 001528685 GBF on November 1, 2011
- 001528686 GBF on November 2, 2011
- 001528724 GBF on November 7, 2011
- 001528725 GBF on November 8, 2011
- 001528726 GBF on November 9, 2011
- 001528727 GBF on November 10, 2011
- 001528729 GBF on November 11, 2011
- 001528730 GBF on November 14, 2011

These manifests displayed the generator of the hazardous waste to be RS Used Oil Services, Inc. (RS) albeit with the site address of Ortek. When asked about the hazardous waste shipments during the inspection, Ortek personnel indicated the material originally came to Ortek in April and May of 2011 through RS, a used oil transporter which routinely brings used oil to Ortek tanks. Ortek personnel pointed out five incoming shipments in April and May 2011 on an RS Account Statement for Ortek dated 7/7/2011. These five shipments (April 1 and May 2, 6, 9, and 17, 2011) were identified by Ortek personnel as the material that was later shipped off Ortek's site on the hazardous waste manifests above.

In response to an information request on October 10, 2012, RS Used Oil Services provided EPA analytical tests performed by Precision Petroleum Labs, Inc. on September 9, 2011 for material in Ortek Tanks 120, 122, 132, 146 and 500. In addition to demonstrating that the material in Tanks 120, 122 and 146 were characteristic for D001, D008 and D039 hazardous wastes, the results also showed that material in Ortek Tank 132 was characteristic for D001, D007, D008 and D039 hazardous waste. Ortek, therefore was storing hazardous waste in Tanks 120, 122, 132, and 146 without a hazardous waste permit and is in violation of the abovementioned requirements

Additionally, and as outlined in Violation 6 above, Ortek failed to provide information to rebut the presumption of used oil mixture with halogenated hazardous waste for four incoming used oil shipments in October, 2011. The four used oil streams had total halogen concentrations greater than 1,000 ppm and were initially placed in Tank 101. Ortek, therefore, was also storing hazardous waste in Tank 101 without a hazardous waste permit and is in violation of the abovementioned requirements.

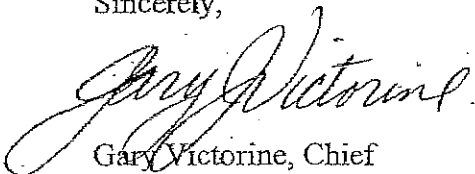
10. Owners or operators of facilities that use tank systems for storing or treating hazardous wastes must follow the regulations of Subpart J of IAC § 725 [Subpart J of 40 CFR § 265].

As outlined in Violation 9 above, Ortek stored hazardous wastes in Tanks 120, 122 and 146 until such wastes were shipped off-site in November, 2011. Ortek also stored hazardous waste in Tank 132 and Tank 101. Ortek, therefore, was storing hazardous waste in Tanks 101, 120, 122, 132, and 146 and was required to meet the hazardous waste storage tank requirements in Subpart J of IAC § 725. Ortek failed to do so. Ortek, therefore, is in violation of the abovementioned requirement.

According to Section 3008(a) of the Resource Conservation and Recovery Act (RCRA), EPA may issue an order assessing a civil penalty for any past or current violation requiring compliance immediately or within a specified time period. Although this letter is not such an order, we request that you submit a response in writing to this office no later than thirty (30) days after receipt of this letter documenting the actions, if any, which have been taken since the inspection to establish compliance with the above conditions and requirements.

You should submit your written response to Brian Kennedy, United States Environmental Protection Agency, Region 5, 77 West Jackson Boulevard, LR-8J, Chicago, Illinois 60604. If you have any questions regarding this letter, or if you wish to confer with us regarding the issues stated above or to present any relevant information you believe we should consider, please contact Mr. Kennedy, of my staff, at (312) 353-4383.

Sincerely,



Gary Victorine, Chief
RCRA Branch

Enclosure
Inspection Report and Checklists

cc: Anna VanOrden, IEPA – Des Plaines District Office (anna.vanorden@illinois.gov)

Request for Transcript of Tax Return

OMB No. 1545-1872

► Request may be rejected if the form is incomplete or illegible.

Tip. Use Form 4506-T to order a transcript or other return information free of charge. See the product list below. You can quickly request transcripts by using our automated self-help service tools. Please visit us at IRS.gov and click on "Order a Transcript" or call 1-800-908-9946. If you need a copy of your return, use **Form 4506, Request for Copy of Tax Return**. There is a fee to get a copy of your return.

| | |
|---|---|
| 1a Name shown on tax return. If a joint return, enter the name shown first. | 1b First social security number on tax return, individual taxpayer identification number, or employer identification number (see instructions) |
| 2a If a joint return, enter spouse's name shown on tax return. | 2b Second social security number or individual taxpayer identification number if joint tax return |
| 3 Current name, address (including apt., room, or suite no.), city, state, and ZIP code (see instructions) | |
| 4 Previous address shown on the last return filed if different from line 3 (see instructions) | |
| 5 If the transcript or tax information is to be mailed to a third party (such as a mortgage company), enter the third party's name, address, and telephone number. | |

Caution. If the tax transcript is being mailed to a third party, ensure that you have filled in lines 6 through 9 before signing. Sign and date the form once you have filled in these lines. Completing these steps helps to protect your privacy. Once the IRS discloses your IRS transcript to the third party listed on line 5, the IRS has no control over what the third party does with the information. If you would like to limit the third party's authority to disclose your transcript information, you can specify this limitation in your written agreement with the third party.

- 6 Transcript requested.** Enter the tax form number here (1040, 1065, 1120, etc.) and check the appropriate box below. Enter only one tax form number per request. ►
- a Return Transcript**, which includes most of the line items of a tax return as filed with the IRS. A tax return transcript does not reflect changes made to the account after the return is processed. Transcripts are only available for the following returns: Form 1040 series, Form 1065, Form 1120, Form 1120A, Form 1120H, Form 1120L, and Form 1120S. Return transcripts are available for the current year and returns processed during the prior 3 processing years. Most requests will be processed within 10 business days ☐
 - b Account Transcript**, which contains information on the financial status of the account, such as payments made on the account, penalty assessments, and adjustments made by you or the IRS after the return was filed. Return information is limited to items such as tax liability and estimated tax payments. Account transcripts are available for most returns. Most requests will be processed within 30 calendar days ☐
 - c Record of Account**, which provides the most detailed information as it is a combination of the Return Transcript and the Account Transcript. Available for current year and 3 prior tax years. Most requests will be processed within 30 calendar days ☐
- 7 Verification of Nonfiling**, which is proof from the IRS that you did not file a return for the year. Current year requests are only available after June 15th. There are no availability restrictions on prior year requests. Most requests will be processed within 10 business days ☐
- 8 Form W-2, Form 1099 series, Form 1098 series, or Form 5498 series transcript.** The IRS can provide a transcript that includes data from these information returns. State or local information is not included with the Form W-2 information. The IRS may be able to provide this transcript information for up to 10 years. Information for the current year is generally not available until the year after it is filed with the IRS. For example, W-2 information for 2010, filed in 2011, will not be available from the IRS until 2012. If you need W-2 information for retirement purposes, you should contact the Social Security Administration at 1-800-772-1213. Most requests will be processed within 45 days ☐

Caution. If you need a copy of Form W-2 or Form 1099, you should first contact the payer. To get a copy of the Form W-2 or Form 1099 filed with your return, you must use Form 4506 and request a copy of your return, which includes all attachments.

- 9 Year or period requested.** Enter the ending date of the year or period, using the mm/dd/yyyy format. If you are requesting more than four years or periods, you must attach another Form 4506-T. For requests relating to quarterly tax returns, such as Form 941, you must enter each quarter or tax period separately.

Check this box if you have notified the IRS or the IRS has notified you that one of the years for which you are requesting a transcript involved **identity theft** on your federal tax return ☐

Caution. Do not sign this form unless all applicable lines have been completed.

Signature of taxpayer(s). I declare that I am either the taxpayer whose name is shown on line 1a or 2a, or a person authorized to obtain the tax information requested. If the request applies to a joint return, either husband or wife must sign. If signed by a corporate officer, partner, guardian, tax matters partner, executor, receiver, administrator, trustee, or party other than the taxpayer, I certify that I have the authority to execute Form 4506-T on behalf of the taxpayer. **Note.** For transcripts being sent to a third party, this form must be received within 120 days of the signature date.

Phone number of taxpayer on line 1a or 2a

Sign Here

Signature (see instructions)

Date

Title (if line 1a above is a corporation, partnership, estate, or trust)

Spouse's signature

Date

Section references are to the Internal Revenue Code unless otherwise noted.

What's New

The IRS has created a page on IRS.gov for information about Form 4506-T at www.irs.gov/form4506. Information about any recent developments affecting Form 4506-T (such as legislation enacted after we released it) will be posted on that page.

General Instructions

CAUTION. Do not sign this form unless all applicable lines have been completed.

Purpose of form. Use Form 4506-T to request tax return information. You can also designate (on line 5) a third party to receive the information. Taxpayers using a tax year beginning in one calendar year and ending in the following year (fiscal tax year) must file Form 4506-T to request a return transcript.

Note. If you are unsure of which type of transcript you need, request the Record of Account, as it provides the most detailed information.

Tip. Use Form 4506, Request for Copy of Tax Return, to request copies of tax returns.

Where to file. Mail or fax Form 4506-T to the address below for the state you lived in, or the state your business was in, when that return was filed. There are two address charts: one for individual transcripts (Form 1040 series and Form W-2) and one for all other transcripts.

If you are requesting more than one transcript or other product and the chart below shows two different addresses, send your request to the address based on the address of your most recent return.

Automated transcript request. You can quickly request transcripts by using our automated self-help service tools. Please visit us at IRS.gov and click on "Order a Transcript" or call 1-800-908-9946.

Chart for individual transcripts (Form 1040 series and Form W-2 and Form 1099)

| If you filed an individual return and lived in: | Mail or fax to the "Internal Revenue Service" at: |
|--|--|
| Alabama, Kentucky, Louisiana, Mississippi, Tennessee, Texas, a foreign country, American Samoa, Puerto Rico, Guam, the Commonwealth of the Northern Mariana Islands, the U.S. Virgin Islands, or A.P.O. or F.P.O. address | RAIVS Team Stop 6716 AUSC Austin, TX 73301 512-460-2272 |
| Alaska, Arizona, Arkansas, California, Colorado, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington, Wisconsin, Wyoming | RAIVS Team Stop 37106 Fresno, CA 93888 559-456-5876 |
| Connecticut, Delaware, District of Columbia, Florida, Georgia, Maine, Maryland, Massachusetts, Missouri, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Vermont, Virginia, West Virginia | RAIVS Team Stop 6705 P-6 Kansas City, MO 64999 816-292-6102 |

Chart for all other transcripts

| If you lived in or your business was in: | Mail or fax to the "Internal Revenue Service" at: |
|--|--|
| Alabama, Alaska, Arizona, Arkansas, California, Colorado, Florida, Hawaii, Idaho, Iowa, Kansas, Louisiana, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, Wyoming, a foreign country, or A.P.O. or F.P.O. address | RAIVS Team P.O. Box 9941 Mail Stop 6734 Ogden, UT 84409 801-620-6922 |
| Connecticut, Delaware, District of Columbia, Georgia, Illinois, Indiana, Kentucky, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia, Wisconsin | RAIVS Team P.O. Box 145500 Stop 2800 F Cincinnati, OH 45250 859-669-3592 |

Line 1b. Enter your employer identification number (EIN) if your request relates to a business return. Otherwise, enter the first social security number (SSN) or your individual taxpayer identification number (ITIN) shown on the return. For example, if you are requesting Form 1040 that includes Schedule C (Form 1040), enter your SSN.

Line 3. Enter your current address. If you use a P. O. box, include it on this line.

Line 4. Enter the address shown on the last return filed if different from the address entered on line 3.

Note. If the address on lines 3 and 4 are different and you have not changed your address with the IRS, file Form 8822, Change of Address.

Line 6. Enter only one tax form number per request.

Signature and date. Form 4506-T must be signed and dated by the taxpayer listed on line 1a or 2a. If you completed line 5 requesting the information be sent to a third party, the IRS must receive Form 4506-T within 120 days of the date signed by the taxpayer or it will be rejected. Ensure that all applicable lines are completed before signing.

Individuals. Transcripts of jointly filed tax returns may be furnished to either spouse. Only one signature is required. Sign Form 4506-T exactly as your name appeared on the original return. If you changed your name, also sign your current name.

Corporations. Generally, Form 4506-T can be signed by: (1) an officer having legal authority to bind the corporation, (2) any person designated by the board of directors or other governing body, or (3) any officer or employee on written request by any principal officer and attested to by the secretary or other officer.

Partnerships. Generally, Form 4506-T can be signed by any person who was a member of the partnership during any part of the tax period requested on line 9.

All others. See section 6103(e) if the taxpayer has died, is insolvent, is a dissolved corporation, or if a trustee, guardian, executor, receiver, or administrator is acting for the taxpayer.

Documentation. For entities other than individuals, you must attach the authorization document. For example, this could be the letter from the principal officer authorizing an employee of the corporation or the letters testamentary authorizing an individual to act for an estate.

Privacy Act and Paperwork Reduction Act

Notice. We ask for the information on this form to establish your right to gain access to the requested tax information under the Internal Revenue Code. We need this information to properly identify the tax information and respond to your request. You are not required to request any transcript; if you do request a transcript, sections 6103 and 6109 and their regulations require you to provide this information, including your SSN or EIN. If you do not provide this information, we may not be able to process your request. Providing false or fraudulent information may subject you to penalties.

Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation, and cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their tax laws. We may also disclose this information to other countries under a tax treaty, to federal and state agencies to enforce federal nontax criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism.

You are not required to provide the information requested on a form that is subject to the Paperwork Reduction Act unless the form displays a valid OMB control number. Books or records relating to a form or its instructions must be retained as long as their contents may become material in the administration of any Internal Revenue law. Generally, tax returns and return information are confidential, as required by section 6103.

The time needed to complete and file Form 4506-T will vary depending on individual circumstances. The estimated average time is: **Learning about the law or the form, 10 min.; Preparing the form, 12 min.; and Copying, assembling, and sending the form to the IRS, 20 min.**

If you have comments concerning the accuracy of these time estimates or suggestions for making Form 4506-T simpler, we would be happy to hear from you. You can write to:

Internal Revenue Service
Tax Products Coordinating Committee
SEW:CAR:MP:T:M:S
1111 Constitution Ave. NW, IR-6526
Washington, DC 20224

Do not send the form to this address. Instead, see *Where to file* on this page.



Acuren Group Inc.
8150 West 185th St, Suite H
Tinley Park IL 60487

Tel: 708.532.5100
Fax: 708.532.5101

A Rockwood Company

TANK INSPECTION REPORT

| | |
|-----------------------------------|---------------------------------------|
| Client: ORTEK | Tank Number: 120 |
| Location: McCook, IL. | Report Number: |
| Inspection Date: 3/18/2016 | Inspector: M. Banicki/A. Smith |

TANK DATA SHEET

| | |
|--|---|
| Facility: ORTEK | Tank Number: 120 |
| Construction Code: | Shell Material: Carbon Steel |
| Product / Service: Used Oil/#5 Dry Fuel Oil | Inspection Type: Internal and External |
| Nominal Diameter: 11' | Nominal Height: 30' |
| Design Specific Gravity: 1.0 | Nominal Capacity: 21,300 Gallons |
| Inspection Code: API 653 | Procedures: EIP-03 |
| Fabricated by: | Erected by: |
| Tank Orientation: Vertical Cylindrical | Maximum Operating Temp: 200F |
| Joint Efficiency: .70 | Foundation: Concrete |
| Status: Out of Service | Year Built: 1952 |
| Design Pressure: Atmospheric | Design liquid height: |
| MDMT: | Roof Type: Self-Supporting Cone |
| Shell Course Total: 5 | Tank Insulated: No |
| Shell Corrosion Allowance: | Tank Type: Welded |
| Corrosion Protection: | Contract No: |



TANK INSPECTION REPORT

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INSPECTION SCOPE SUMMARY

In March 2016, an external and internal inspection was performed in accordance with API 653 on Tank 120 at ORTEK's McCook, IL. facility. Ultrasonic thickness readings were taken and evaluated during the inspection.

The following report includes findings, recommendations, and inspection data. Drawings are used to illustrate data collection points. Acuren Groups final reports have no intent or represent in any form of an engineering evaluation of the serviceability of the tank structure. The Client, Owner and Operator has final acceptance of inspection data submitted.

Scope of Services:

This document and all services and/or products provided in connection with this document and all future sales are subject to and shall be governed by the "Acuren Standard Service Terms" in effect when the services and/or products are ordered. **THOSE TERMS ARE AVAILABLE AT WWW.ACUREN.COM/SERVICETERMS, ARE EXPRESSLY INCORPORATED BY REFERENCE INTO THIS DOCUMENT AND SHALL SUPERSEDE ANY CONFLICTING TERMS IN ANY OTHER DOCUMENT (EXCEPT WHERE EXPRESSLY AGREED OTHERWISE IN THAT OTHER DOCUMENT).**



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A Rockwood Company

TANK INSPECTION REPORT

EXTERNAL INSPECTION

The tank is not insulated. The tank is painted, the paint is in overall good condition. Significant shell plate distortion is found in a 5' wide X 9' long area on the 1st and 2nd courses at the southwest side. The distortion consists of sharp dents at vertical and horizontal welds to 1" deflection. No rust, scale, or corrosion was found on the shell or nozzles. The roof has paint loss throughout with minor rust occurring. The bottom to concrete interface shows no corrosion and has been recently sealed with a black, tar-like product. The sealant is in good condition. The level gauge cable is tied off, not allowing free movement of the gauge. The 2" vent on the center of the roof appears open and clear. The concrete dike floor and walls are in good condition, minor cracks were found. No standing water, product, or vegetation was noted in the dike. The dike is sloped properly to a clear drain. No name plate or ground cable is attached.

INTERNAL INSPECTION

Floor:

The floor was found mostly clean with minor areas of black product remaining by the steam coil supports. The floor plates were found mostly free of corrosion except for an area under the inlet nozzle on the n.e. side where multiple pits were found to .03" deep. No distortion or edge settlement was observed. All welds appeared of good quality and in good condition. The steam coil had product residue on it but no corrosion or damage was observed. Numerous thickness readings were taken on the floor and were found at or near the assumed nominal thickness of .250". Minimal underside corrosion was detected.

Shell:

The bottom course was clean, the upper courses have a thin layer of black product remaining. Distortion is noted at the s.w. side on the 1st and 2nd courses (see external above). No corrosion was found on the butt welded plates. The nozzles appeared with minimal corrosion. All the couplings for the nozzles are welded, except for the 3" inlet nozzle at the n.e. side. The internal piping that is attached to them is threaded and appears in serviceable condition.

Roof:

As viewed from the floor, the self-supporting roof appears free of damage and in serviceable condition.



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A Rockwood Company

TANK INSPECTION REPORT

SUMMARY of RECOMMENDATIONS

The significant distortion on the 1st and 2nd courses at the s.w. side should be evaluated by an engineer familiar with tank construction for serviceability, or the area should be replaced.

If the distorted plate is to be replaced, it could be performed by cutting out the approx. 9' long X 5' wide section and weld in new plate. Specific criteria on materials, construction, and inspection methods would need to be addressed before the work begins.

Either option should be performed before the tank is placed in service.

The level gauge cable should be repaired or replaced to ensure it has free movement and is reading accurately before placing the tank in service.

The gasket surface of the manway and on the cover plate should be cleaned of old gasket material and a new gasket should be installed before placing the tank in service.

THICKNESS EVALUATION and INSPECTION INTERVAL

Ultrasonic thickness measurements were obtained on the floor plates, shell, nozzles, and roof. Readings were found at or near the assumed nominal thickness of the plates, see attached sketches. No previous thickness readings were available. There was no evidence of significant soil side corrosion occurring as determined by the thickness readings on the floor plates being at or near the nominal thickness.

Floor Calculation: .250" in 1952 (original construction).

.236" is the lowest remaining thickness in 2016 (as found from UT readings).

With the service life of the tank at 64 years, the corrosion rate is calculated at .0002"/year.

Next recommended inspection intervals.

Internal=in 20 years

External with UT Thickness Survey= in 5 years

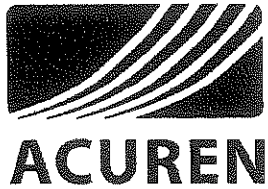
THESE NEXT INSPECTION INTERVALS ARE ONLY VALID AFTER THE SHELL DISTORTION IS ADDRESSED.

Inspector Name: Mike Banicki

API# 6021

Inspector Signature: 

Date: 3/18/2016



Acuren Group Inc.
8150 West 185th St, Suite H
Tinley Park IL 60487

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A Rockwood Company

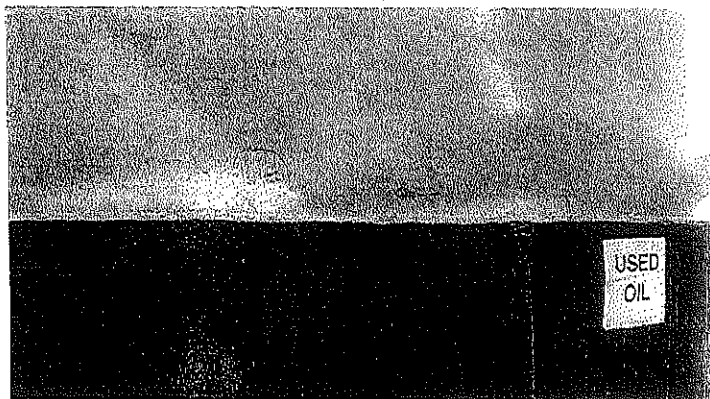
TANK INSPECTION REPORT

PHOTOGRAPHS

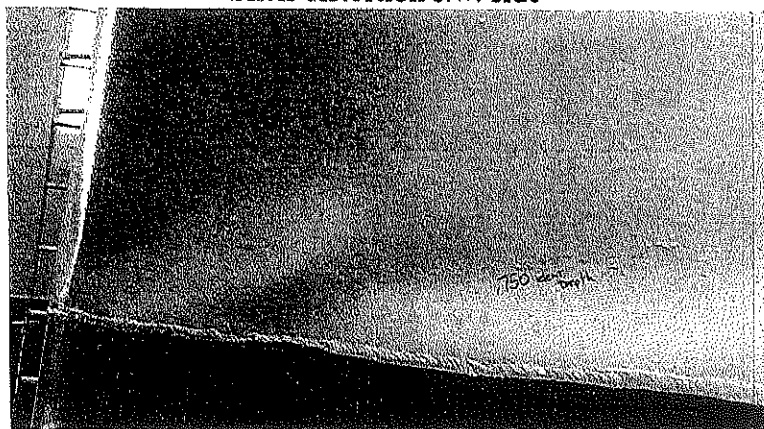
3" inlet nozzle n.e. side

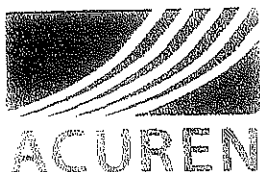


Shell distortion s.w. side



Shell distortion s.w. side



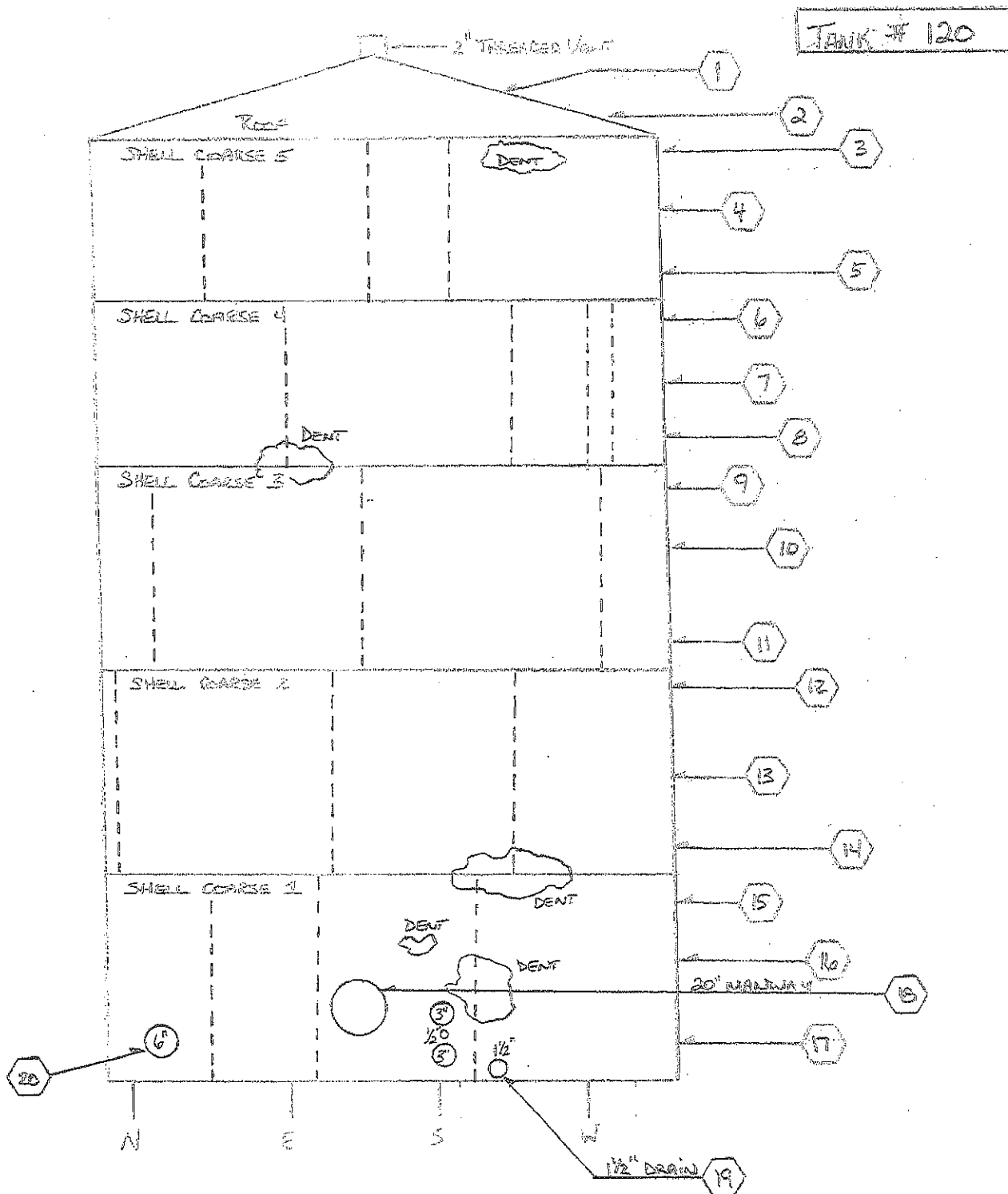


Acuren Inspection, Inc.
8150 West 185th Street, Suite H
Tinley Park, IL 60487
Phn: 708.532.5100
Fax: 708.532.5101

Report #: 40228
Company Name: ORTEX
Location: McCook, IL
Inspection Date: 3-17-16
Technician: CHRIS WOOD / AUSTIN SMITH
SC #: 501574
WO #:

Page: 1 of 2

FIELD SKETCH



SEE BACK FOR ORDER ACKNOWLEDGMENT



ULTRASONIC THICKNESS INSPECTION REPORT

Date: 03-17-2016

Description: Tank #120 Shell

Job Location: Ortek - McCook, IL.

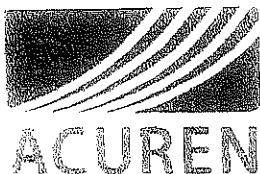
Ultrasonic Thickness Readings (See Dwg. For details)

Page 2 of 2

Technicians: C. Wood / A. Smith

| <u>Description</u> | <u>Location</u> | <u>North</u> | <u>East</u> | <u>South</u> | <u>West</u> | <u>Top</u> | <u>Bottom</u> | |
|--------------------|-----------------|--------------|-------------|--------------|----------------------|------------|---------------|--|
| Roof | 1 | N/A | .132" | .140" | N/A | - | - | |
| Roof | 2 | .112" | .126" | .157" | N/A | - | - | |
| Shell | 3 | .092" | .106" | .108" | N/A | - | - | |
| Shell | 4 | .129" | .125" | .130" | N/A | - | - | |
| Shell | 5 | .127" | .125" | .129" | N/A | - | - | |
| Shell | 6 | .122" | .128" | .136" | N/A | - | - | |
| Shell | 7 | .124" | .135" | .138" | N/A | - | - | |
| Shell | 8 | .132" | .136" | .139" | N/A | - | - | |
| Shell | 9 | .138" | .140" | .143" | N/A | - | - | |
| Shell | 10 | .142" | .147" | .152" | N/A | - | - | |
| Shell | 11 | .149" | .148" | .154" | N/A | - | - | |
| Shell | 12 | .146" | .144" | .144" | N/A | - | - | |
| Shell | 13 | .144" | .146" | .147" | .147" | - | - | |
| Shell | 14 | .145" | .146" | .146" | .146" | - | - | |
| Shell | 15 | .239" | .242" | .240" | .245" | - | - | |
| Shell | 16 | .244" | .242" | .241" | .249" | - | - | |
| Shell | 17 | .243" | .241" | .241" | .247" | - | - | |
| 20" Manway | 18 | NE .249" | - | SW .219" | - | .224" | .250" | |
| 1-1/2" Nozzle | 19 | - | - | - | - | .150" | N/A | |
| 6" Nozzle | 20 | NW .819" | - | SE .819" | - | .817" | .820" | |
| | | | | | | | | |
| | | | | | N/A = Not Accessible | | | |
| | | | | | | | | |
| | | | | | | | | |

| | | |
|--------------------------------|--------------|------------------|
| Prepared by: Austin Smith | Approved by: | Date: 03-18-2016 |
| Signature: <i>Austin Smith</i> | | |

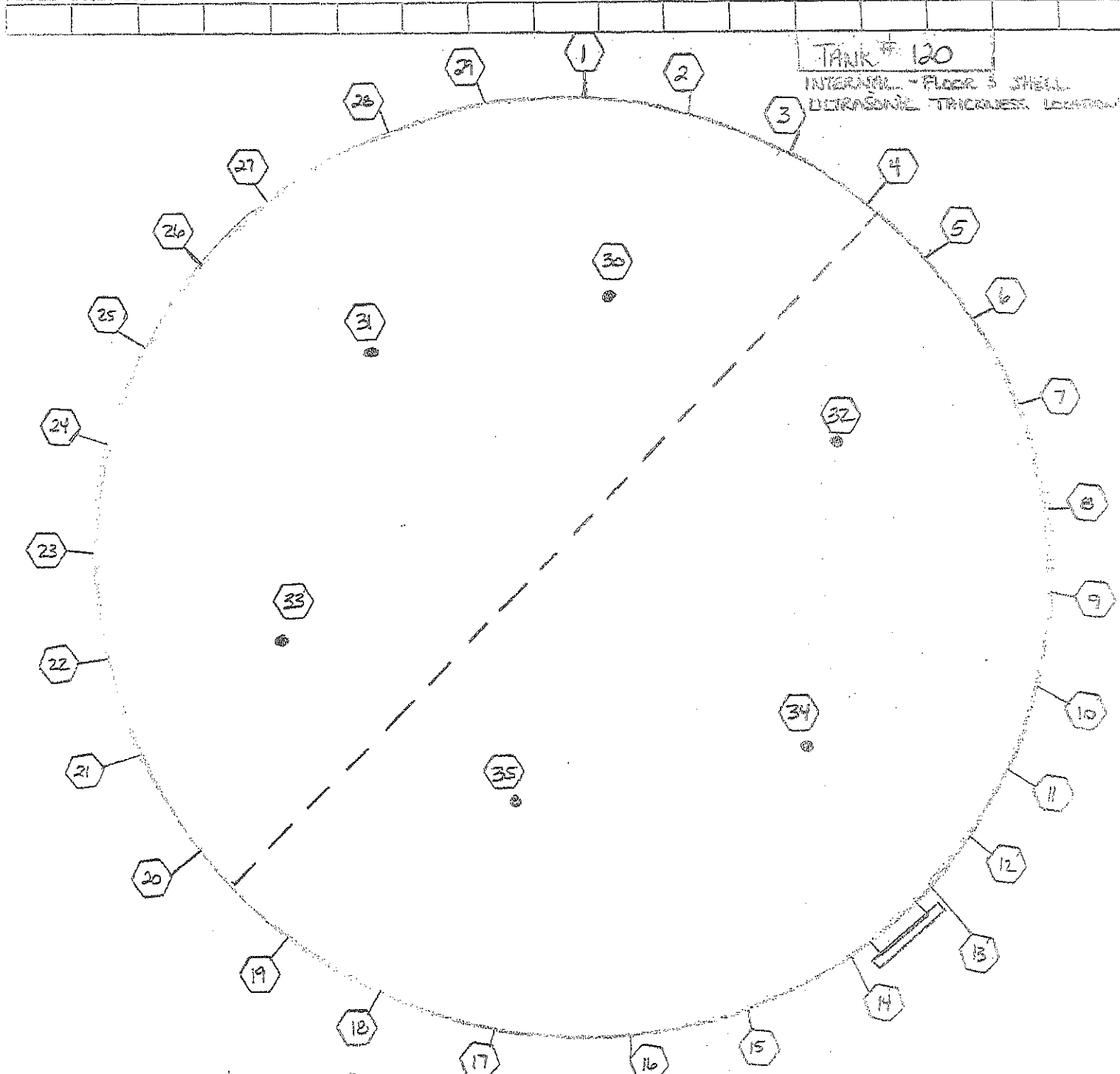


Acuren Inspection, Inc.
8150 West 103th Street, Suite H
Tinley Park, IL 60487
Phn: 708.532.5100
Fax: 708.532.5101

Report #: AC22875
Company Name: QCTEK
Location: NEPARK, IL
Inspection Date: 5-17-11
Technician: Paul W. / Austin Smith
SC #: 501571
WO #:

Page: 1 of 3

FIELD SKETCH



SHT. #2 FLOOR READINGS WERE TAKEN IN 1FT INCREMENTS APPROX. 2 IN. FROM THE CHIME.
SHT. #3 SHELL READINGS WERE TAKEN IN 1FT INCREMENTS APPROX. 1 IN. ABOVE THE CHIME.

SEE BACK FOR ORDER ACKNOWLEDGMENT



ULTRASONIC THICKNESS INSPECTION REPORT

Date: 03-17-2016

Description: Tank #120

Sht.#2 Floor

Job Location: Ortek - McCook, IL.

Ultrasonic Thickness Readings (See Dwg. For details)

See sheet #1 for UTT locations

Technicians: C. Wood / A.Smith

| <u>Description</u> | <u>Location</u> | <u>Thickness</u> | | <u>Location</u> | <u>Thickness</u> | | | |
|--------------------|-----------------|------------------|--|---|------------------|--|--|--|
| Floor | 1 | .254" | | 24 | .250" | | | |
| Floor | 2 | .256" | | 25 | .239" | | | |
| Floor | 3 | .256" | | 26 | .249" | | | |
| Floor | 4 | .254" | | 27 | .258" | | | |
| Floor | 5 | .247" | | 28 | .252" | | | |
| Floor | 6 | .252" | | 29 | .254" | | | |
| Floor | 7 | .254" | | 30 | .256" | | | |
| Floor | 8 | .252" | | 31 | .253" | | | |
| Floor | 9 | .255" | | 32 | .254" | | | |
| Floor | 10 | .254" | | 33 | .256" | | | |
| Floor | 11 | .253" | | 34 | .242" | | | |
| Floor | 12 | .252" | | 35 | .248" | | | |
| Floor | 13 | .253" | | | | | | |
| Floor | 14 | .262" | | | | | | |
| Floor | 15 | .251" | | | | | | |
| Floor | 16 | .242" | | | | | | |
| Floor | 17 | .236" | | | | | | |
| Floor | 18 | .244" | | The thickness readings were taken internally on the floor in appox. 1ft increments | | | | |
| Floor | 19 | .250" | | | | | | |
| Floor | 20 | .249" | | | | | | |
| Floor | 21 | .232" | | | | | | |
| Floor | 22 | .254" | | | | | | |
| Floor | 23 | .249" | | | | | | |

| | | |
|---------------------------|--------------|------------------|
| Prepared by: Austin Smith | Approved by: | Date: 03-18-2016 |
| Signature: | | |



ULTRASONIC THICKNESS INSPECTION REPORT

Date: 03-17-2016

Description: Tank #120

Sht. #3 Internal Shell

Job Location: Ortek - McCook, IL.

Ultrasonic Thickness Readings (See Dwg. For details)

Technicians: C. Wood / A. Smith

See Sheet #1 for UTT locations

| <u>Description</u> | <u>Location</u> | <u>Thickness</u> | | <u>Location</u> | <u>Thickness</u> | | | |
|--------------------|-----------------|------------------|--|---|------------------|--|--|--|
| Shell | 1 | .253" | | 24 | .251" | | | |
| Shell | 2 | .256" | | 25 | .250" | | | |
| Shell | 3 | .252" | | 26 | .257" | | | |
| Shell | 4 | .246" | | 27 | .262" | | | |
| Shell | 5 | .248" | | 28 | .261" | | | |
| Shell | 6 | .249" | | 29 | .262" | | | |
| Shell | 7 | .248" | | | | | | |
| Shell | 8 | .223" | | | | | | |
| Shell | 9 | .250" | | | | | | |
| Shell | 10 | .235" | | | | | | |
| Shell | 11 | .257" | | | | | | |
| Shell | 12 | .252" | | | | | | |
| Shell | 13 | .254" | | | | | | |
| Shell | 14 | .248" | | | | | | |
| Shell | 15 | .244" | | | | | | |
| Shell | 16 | .243" | | | | | | |
| Shell | 17 | .246" | | | | | | |
| Shell | 18 | .253" | | | | | | |
| Shell | 19 | .253" | | The readings were taken internally in approx. 1ft increments around the chime weld and 1in. above on the bottom shell course. | | | | |
| Shell | 20 | .251" | | | | | | |
| Shell | 21 | .257" | | | | | | |
| Shell | 22 | .251" | | | | | | |
| Shell | 23 | .247" | | | | | | |

| | | |
|----------------------------|--------------|------------------|
| Prepared by: Austin Smith | Approved by: | Date: 03-18-2016 |
| Signature: <i>A. Smith</i> | | |



ULTRASONIC CALIBRATION RECORD

Acuren Inspection, Inc.
8150 West 185th Street - Suite H
Tinley Park, Illinois 60487
Phone: 708.532.5100

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NDT, Inspection and Materials Engineering
a Rockwood Company

Page 1 of 1

| | | |
|--|----------------------------------|---------------------|
| CUSTOMER: Ortek | ACUREN SERVICE CALL #: 501574 | DATE: 03/17/2016 |
| LOCATION/ADDRESS: 7601 W. 47th St. McCook, IL | CUSTOMER CONTACT: Bob | |
| EQUIPMENT ID: TANKS # 120, 122 & 132 | CUSTOMER PO #: 346683 | CUSTOMER WO #: |

ITEM DESCRIPTION:
API 653

| | | | |
|------------------------|-----------|--|------------------------|
| NDE PROCEDURE UT-2A | REV. 4 | ACCEPTANCE STANDARD: CUSTOMER INFO. | ITEM TEMP: 70 °F |
| | | | CAL BLK TEMP: 70 °F |

EXAMINER / LEVEL:
Level II

EXAMINER / LEVEL:

| Search Unit | | Instrument | |
|---|--------------|------------|--------------|
| Manufacturer: Olympus | S/N: 1102578 | Mode: | Mat'l Cal: |
| Nom. Angle: 0 | Meas.: | Reject: | Damping: |
| Size: .375" | Freq.: 5 MHZ | Rep. Rate: | Filter: |
| Delay: | | Ref. Gain: | Freq.: |
| Cable/Length: 4' | | Scan Gain: | Zero Offset: |
| Technique: <input type="checkbox"/> Longitudinal <input type="checkbox"/> Shearwave | | Delay: | Velocity: |
| <input type="checkbox"/> Other | | Range: | |

| | | | | |
|--|--------------|-----------|---------------|-----------|
| Calibration Block: | TYPE: | MATERIAL: | MANUFACTURER: | S/N: |
| <input type="checkbox"/> Curved <input checked="" type="checkbox"/> Flat | 5 Step Wedge | C/S | | AK-UT-047 |

Narrative:

5 STEP WEDGE

Pre. Cal: .100" - .200" - .300" - .400" - .500"
Post Cal: .100" - .200" - .300" - .400" - .500"

Sketch:

☐ Additional Pages

| | | | |
|---|------------------------|------------------------|--------------------|
| Instrument Linearity Verification Date Performed: | | Screen Size: | |
| Reject Level: | Scan Sensitivity Level | Division = | Inch(s) Metal Path |
| % DAC | + | dB | |
| CUSTOMER REPRESENTATIVE | ACUREN INSPECTOR | Initial: | Check: |
| Print Name / Signature | Date | Chris Wood | 03/17/2016 |
| PEER REVIEW (IF APPLICABLE): | | Print Name / Signature | Date |
| | | | II |
| | | Print Name / Signature | Date |
| | | | Inspection Level |

Customer Representative signature certifies that above information is correct, including hours worked and acceptance standard and materials used.

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A Rockwood Company

TANK INSPECTION REPORT

| | |
|-----------------------------------|---------------------------------------|
| Client: ORTEK | Tank Number: 122 |
| Location: McCook, IL. | Report Number: |
| Inspection Date: 3/18/2016 | Inspector: M. Banicki/A. Smith |

TANK DATA SHEET

| | |
|--|---|
| Facility: ORTEK | Tank Number: 122 |
| Construction Code: | Shell Material: Carbon Steel |
| Product / Service: Used Oil/#5 Dry Fuel Oil | Inspection Type: Internal and External |
| Nominal Diameter: 11' | Nominal Height: 30' |
| Design Specific Gravity: 1.0 | Nominal Capacity: 21,300 Gallons |
| Inspection Code: API 653 | Procedures: EIP-03 |
| Fabricated by: | Erected by: |
| Tank Orientation: Vertical Cylindrical | Maximum Operating Temp: 200F |
| Joint Efficiency: .70 | Foundation: Concrete |
| Status: Out of Service | Year Built: 1952 |
| Design Pressure: Atmospheric | Design liquid height: |
| MDMT: | Roof Type: Self-Supporting Cone |
| Shell Course Total: 5 | Tank Insulated: No |
| Shell Corrosion Allowance: | Tank Type: Welded |
| Corrosion Protection: | Contract No: |



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TANK INSPECTION REPORT

INSPECTION SCOPE SUMMARY

In March 2016, an external and internal inspection was performed in accordance with API 653 on Tank 122 at ORTEK's McCook, IL. facility. Ultrasonic thickness readings were taken and evaluated during the inspection.

The following report includes findings, recommendations, and inspection data. Drawings are used to illustrate data collection points. Acuren Groups final reports have no intent or represent in any form of an engineering evaluation of the serviceability of the tank structure. The Client, Owner and Operator has final acceptance of inspection data submitted.

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TANK INSPECTION REPORT

EXTERNAL INSPECTION

The tank is not insulated. The tank is painted, the paint is in overall good condition with areas of paint failure found at the bottom 3' with light rust occurring.

No significant distortion, scale, or corrosion was found on the shell, nozzles, or roof.

The bottom to concrete interface shows no corrosion and has been recently sealed with a black, tar-like product. The sealant is in good condition.

The level gauge cable is tied off, not allowing free movement of the gauge.

The 2" vent on the center of the roof appears open and clear.

The concrete dike floor and walls are in good condition, minor cracks were found.

No standing water, product, or vegetation was noted in the dike.

The dike is sloped properly to a clear drain.

No name plate or ground cable is attached.

The tank has an access ladder to the roof, the ladder is in good condition.

INTERNAL INSPECTION

Floor:

The floor was found mostly clean with minor areas of black product remaining by the steam coil supports.

The floor plates were found mostly free of corrosion except for an area at the n.e. side where multiple pits were found to .06" deep and one measured to .09" deep. No distortion or edge settlement was observed.

All welds appeared of good quality and in good condition.

The steam coil had product residue on it but no corrosion or damage was observed.

Numerous thickness readings were taken on the floor and were found at or near the assumed nominal thickness of .250". Minimal underside corrosion was detected.

Shell:

The bottom course was clean, the upper courses have a thin layer of black product remaining. No distortion or corrosion was found on the butt welded plates.

The nozzles appeared with minimal corrosion. All the couplings for the nozzles are welded, the internal piping that is attached to them is threaded. The internal piping appears in serviceable condition.

Roof:

As viewed from the floor, the self-supporting roof appears free of damage and in serviceable condition.



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TANK INSPECTION REPORT

SUMMARY of RECOMMENDATIONS

Repair or replace the level gauge cable and ensure it has free movement and is reading accurately before placing the tank in service.

Clean the gasket surface of the manway and the cover plate and install a new gasket before placing the tank in service.

THICKNESS EVALUATION and INSPECTION INTERVAL

Ultrasonic thickness measurements were obtained on the floor plates, shell, nozzles, and roof. Readings were found at or near the assumed nominal thickness of the plates, see attached sketches. No previous thickness readings were available. There was no evidence of significant soil side corrosion occurring as determined by the thickness readings on the floor plates being at or near the nominal thickness.

Floor Calculation: .250" in 1952 (original construction).

.160" is the lowest remaining thickness in 2016 (at .09" pit).

With the service life of the tank at 64 years, the corrosion rate is calculated at .002"/year.

Next recommended inspection intervals.

Internal=in 20 years

External with UT Thickness Survey= in 5 years

Inspector Name: Mike Baricki

API# 6021

Inspector Signature: 

Date: 3/18/2016



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8150 West 185th St, Suite H
Tinley Park IL 60487

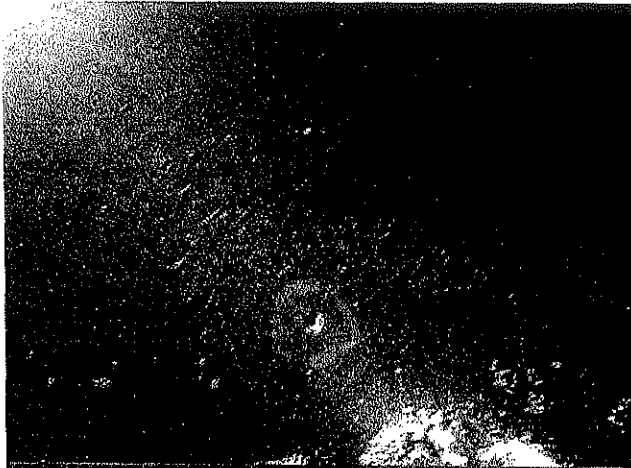
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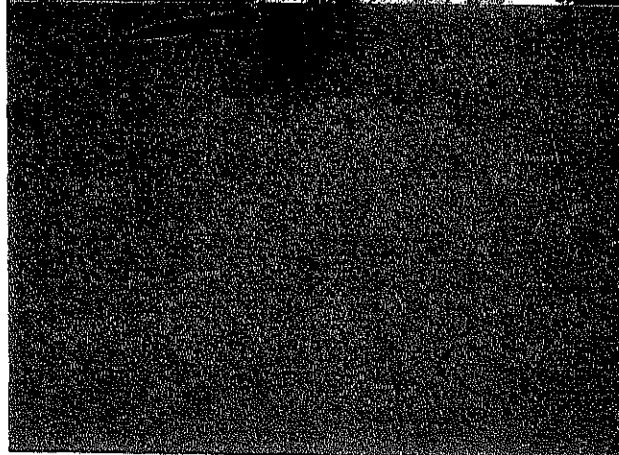
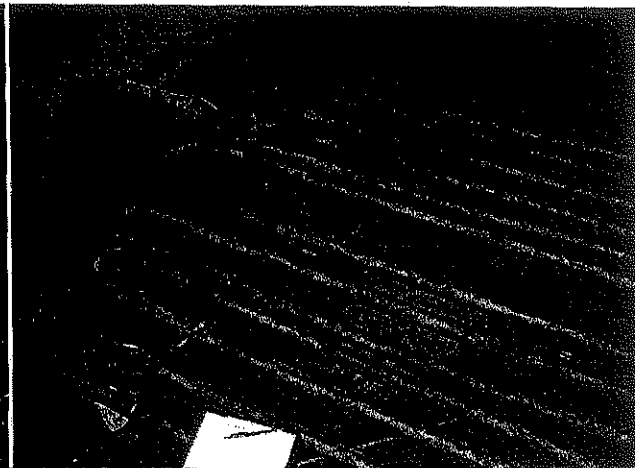
TANK INSPECTION REPORT

PHOTOGRAPHS

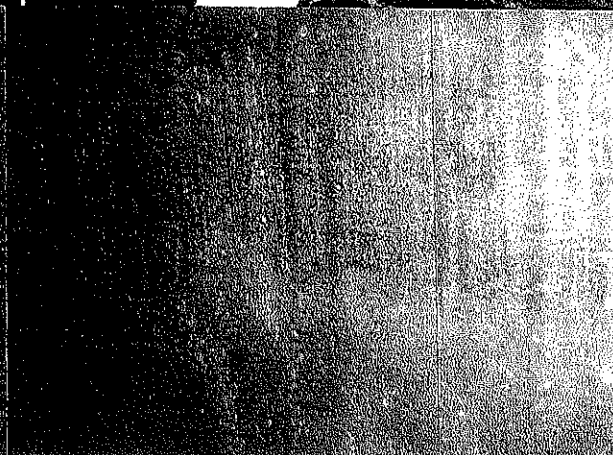
Pit on floor



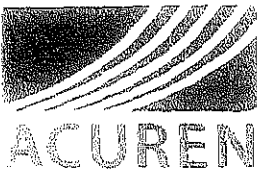
Overall of floor with steam coils



Overall of roof



Typical condition of shell (no corrosion)

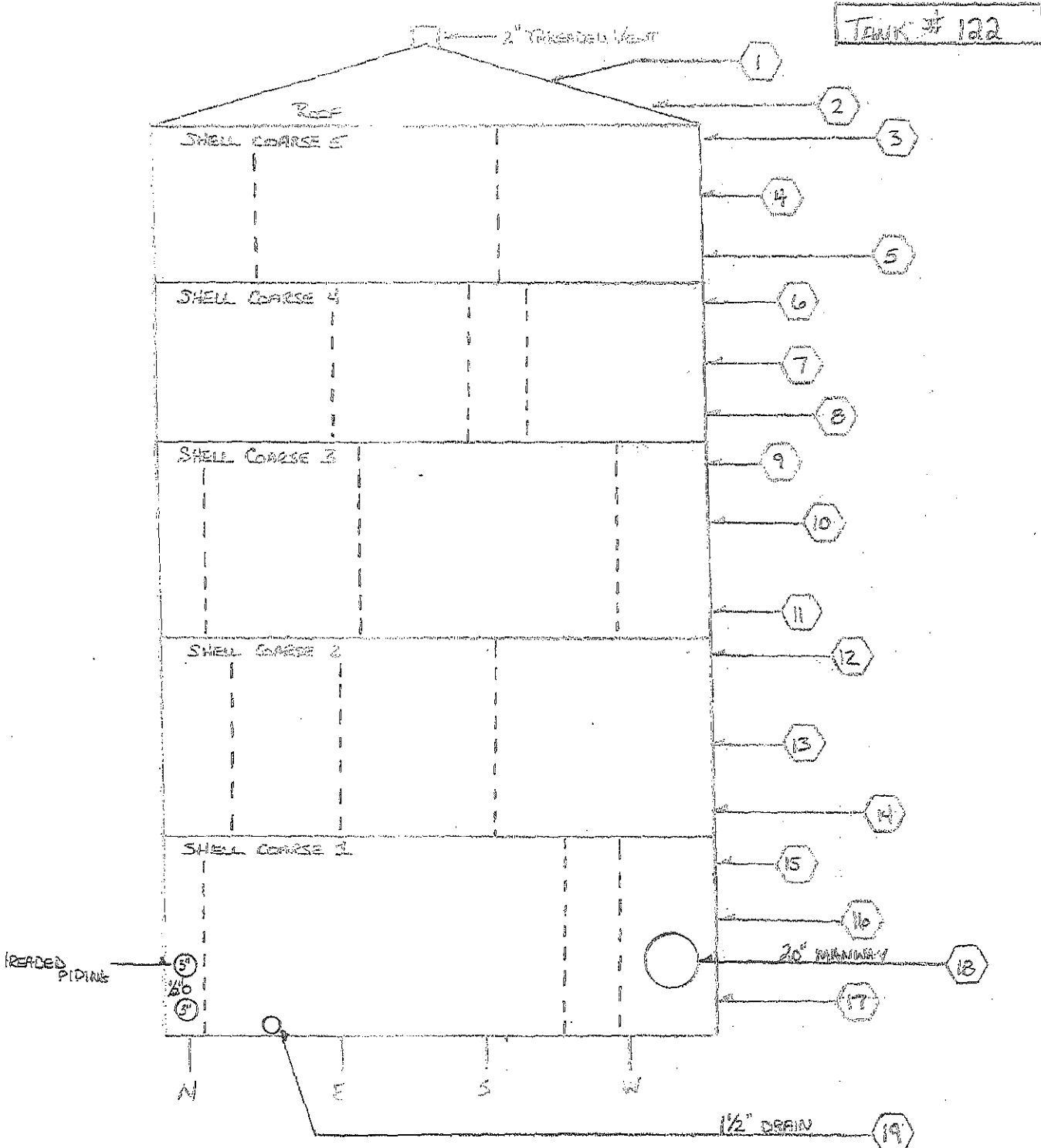


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Tinley Park, IL 60487
Phn: 708.532.5100
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Report #: AG2287
Company Name: DATEX
Location: McCook, IL
Inspection Date: 3-17-16
Technician: CARL WOOD / AUSTIN SMITH
SC #: 501574
WO #:

Page: ____ of ____

FIELD SKETCH




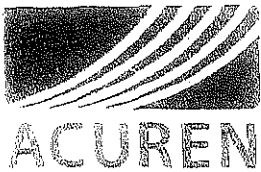


Description: Tank #122 Shell

Ultrasonic Thickness Readings (See Dwg. For details)

Technicians: C. Wood / A.Smith

| | | |
|--|--------------|------------------|
| Prepared by: Austin Smith | Approved by: | Date: 03-18-2016 |
| Signature:  | | |

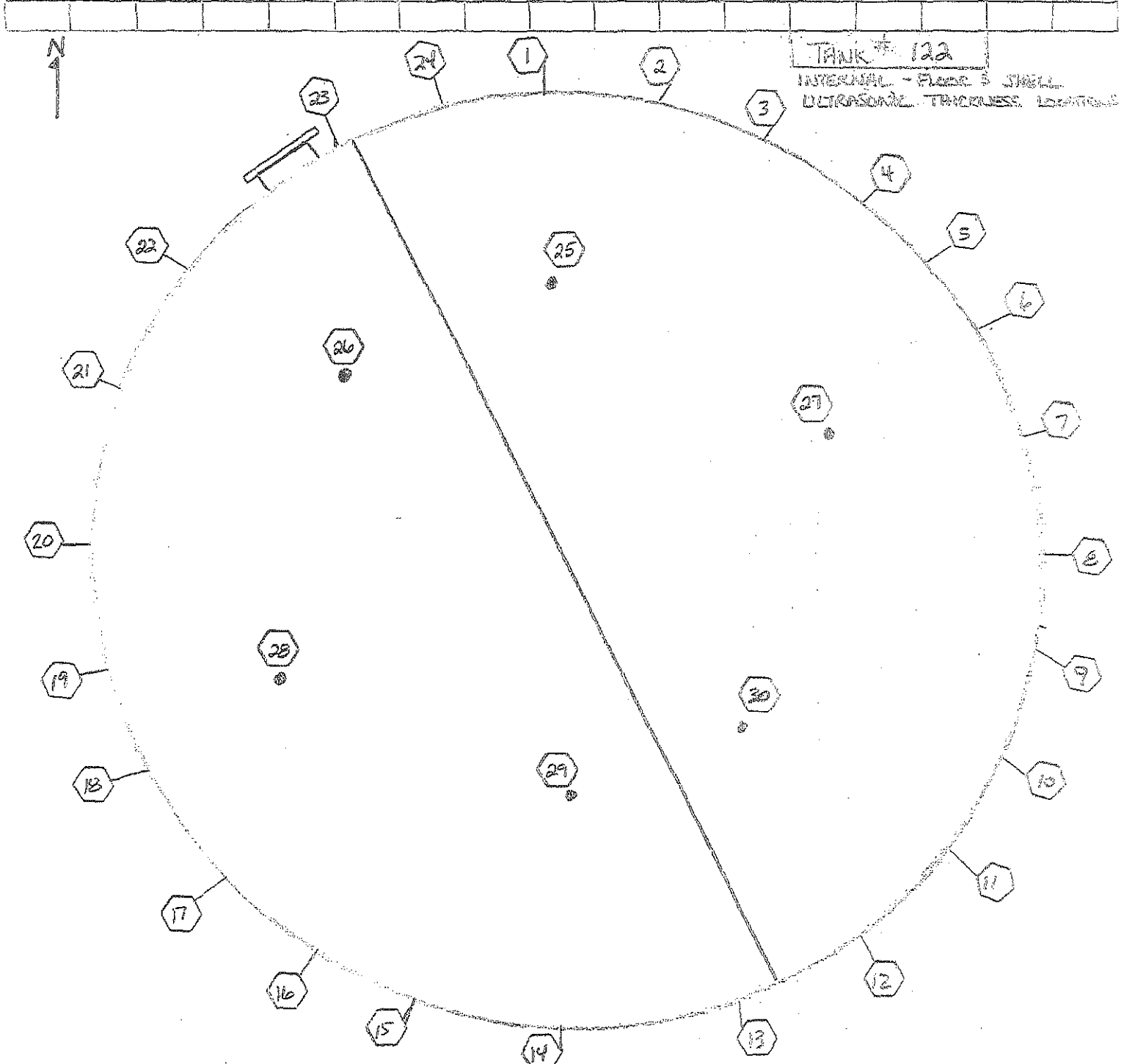


Acuren Inspection, Inc.
8150 West 135th Street, Suite H
Tinley Park, IL 60487
Phn: 708.532.5100
Fax: 708.532.5101

Report #: 4022878
Company Name: Conner
Location: McCook, IL
Inspection Date: 3-17-06
Technician: Mark Wilson / Austin Smith
SC #: 501574
WO #:

Page: 1 of 3

FIELD SKETCH



SHT.#2 FLOOR READINGS WERE TAKEN IN 1FT INCREMENTS APPROX. 2IN. FROM THE CHIME.
SHT.#3 SHELL READINGS WERE TAKEN IN 1FT INCREMENTS APPROX. 1IN ABOVE THE CHIME.



ULTRASONIC THICKNESS INSPECTION REPORT

Date: 03-17-2016

Description: Tank #122

Sht.#2 Floor

Job Location: Ortek - McCook, IL.

Ultrasonic Thickness Readings (See Dwg. For details)

See sheet #1 for UTT locations

Technicians: C. Wood / A.Smith

| <u>Description</u> | <u>Location</u> | <u>Thickness</u> | | <u>Location</u> | <u>Thickness</u> | | | |
|--------------------|-----------------|------------------|--|--|------------------|--|--|--|
| Floor | 1 | .258" | | 24 | .249" | | | |
| Floor | 2 | .250" | | 25 | .251" | | | |
| Floor | 3 | .253" | | 26 | .257" | | | |
| Floor | 4 | .250" | | 27 | .252" | | | |
| Floor | 5 | .252" | | 28 | .252" | | | |
| Floor | 6 | .252" | | 29 | .247" | | | |
| Floor | 7 | .254" | | 30 | .247" | | | |
| Floor | 8 | .251" | | | | | | |
| Floor | 9 | .252" | | | | | | |
| Floor | 10 | .253" | | | | | | |
| Floor | 11 | .258" | | | | | | |
| Floor | 12 | .257" | | | | | | |
| Floor | 13 | .252" | | | | | | |
| Floor | 14 | .256" | | | | | | |
| Floor | 15 | .254" | | | | | | |
| Floor | 16 | .251" | | | | | | |
| Floor | 17 | .261" | | | | | | |
| Floor | 18 | .255" | | The thickness readings were taken internally on the floor in appox. 1ft increments. Access was limited due to the configuration of the internal coils. | | | | |
| Floor | 19 | .247" | | | | | | |
| Floor | 20 | .250" | | | | | | |
| Floor | 21 | .246" | | | | | | |
| Floor | 22 | .251" | | | | | | |
| Floor | 23 | .250" | | | | | | |

| | | |
|----------------------------|--------------|------------------|
| Prepared by: Austin Smith | Approved by: | Date: 03-18-2016 |
| Signature: <i>A. Smith</i> | | |



ULTRASONIC THICKNESS INSPECTION REPORT

Date: 03-17-2016

Description: Tank #122

Sht. #3 Internal Shell

Job Location: Ortek - McCook, IL.

Ultrasonic Thickness Readings (See Dwg. For details)

Technicians: C. Wood / A. Smith

See Sheet #1 for UTT locations

| <u>Description</u> | <u>Location</u> | <u>Thickness</u> | | <u>Location</u> | <u>Thickness</u> | | | |
|--------------------|-----------------|------------------|--|--|------------------|--|--|--|
| Shell | 1 | .251" | | 24 | .253" | | | |
| Shell | 2 | .252" | | | | | | |
| Shell | 3 | .256" | | | | | | |
| Shell | 4 | .250" | | | | | | |
| Shell | 5 | .257" | | | | | | |
| Shell | 6 | .254" | | | | | | |
| Shell | 7 | .252" | | | | | | |
| Shell | 8 | .253" | | | | | | |
| Shell | 9 | .252" | | | | | | |
| Shell | 10 | .257" | | | | | | |
| Shell | 11 | .257" | | | | | | |
| Shell | 12 | .260" | | | | | | |
| Shell | 13 | .255" | | | | | | |
| Shell | 14 | .253" | | | | | | |
| Shell | 15 | .257" | | | | | | |
| Shell | 16 | .254" | | | | | | |
| Shell | 17 | .256" | | | | | | |
| Shell | 18 | .258" | | | | | | |
| Shell | 19 | .257" | | The readings were taken internally in approx. 1ft increments around the chime weld and 1in. above on the bottom shell course. Access was limited due to the configuration of the internal coils. | | | | |
| Shell | 20 | .253" | | | | | | |
| Shell | 21 | .254" | | | | | | |
| Shell | 22 | .252" | | | | | | |
| Shell | 23 | .251" | | | | | | |

| | | |
|--------------------------------|--------------|------------------|
| Prepared by: Austin Smith | Approved by: | Date: 03-18-2016 |
| Signature: <i>Austin Smith</i> | | |



ULTRASONIC CALIBRATION RECORD

Acuren Inspection, Inc.
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Phone: 708.532.5100

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a Rockwood Company

Page 1 of 1

| | | |
|--|----------------------------------|---------------------|
| CUSTOMER: Ortek | ACUREN SERVICE CALL #: 501574 | DATE: 03/17/2016 |
| LOCATION/ADDRESS: 7601 W. 47th St. McCook, IL | CUSTOMER CONTACT: Bob | |
| EQUIPMENT ID: TANKS # 120, 122 & 132 | CUSTOMER PO #: 346683 | CUSTOMER WO #: |

ITEM DESCRIPTION:

API 653

| | | | |
|------------------------|-----------|--|---------------------|
| NDE PROCEDURE UT-2A | REV. 4 | ACCEPTANCE STANDARD: CUSTOMER INFO. | ITEM TEMP: 70 °F |
| | | | CAL BLK TEMP: 70 °F |

| | |
|-------------------------------|-------------------|
| EXAMINER / LEVEL: Level II | EXAMINER / LEVEL: |
|-------------------------------|-------------------|

| Search Unit | Instrument |
|---|-------------------------------------|
| Manufacturer: Olympus S/N: 1102578 | Mode: _____ Mat'l Cal: _____ |
| Nom. Angle: 0 Meas.: _____ | Reject: _____ Damping: _____ |
| Size: .375" Freq.: 5 MHZ | Rep. Rate: _____ Filter: _____ |
| Delay: _____ | Ref. Gain: _____ Freq.: _____ |
| Cable/Length: 4' | Scan Gain: _____ Zero Offset: _____ |
| Technique: <input type="checkbox"/> Longitudinal <input type="checkbox"/> Shearwave | Delay: _____ Velocity: _____ |
| <input type="checkbox"/> Other | Range: _____ |

| | | | | |
|---|--------------------|---------------|---------------------|----------------|
| Calibration Block: <input type="checkbox"/> Curved <input checked="" type="checkbox"/> Flat | TYPE: 5 Step Wedge | MATERIAL: C/S | MANUFACTURER: _____ | S/N: AK-UT-047 |
|---|--------------------|---------------|---------------------|----------------|

Narrative:

5 STEP WEDGE

Pre. Cal: .100" - .200" - .300" - .400" - .500"
Post Cal: .100" - .200" - .300" - .400" - .500"

Sketch:

☐ Additional Pages

| | |
|---|--------------|
| Instrument Linearity Verification Date Performed: | Screen Size: |
|---|--------------|

| | | | | | | | |
|-------------------------|-------|------------------------|----|------------------|--------|--------|--------|
| Reject Level | % DAC | Scan Sensitivity Level | dB | Initial: | Check: | Final: | Check: |
| CUSTOMER REPRESENTATIVE | | | | ACUREN INSPECTOR | | | |

| | | | | |
|------------------------|------|------------------------|------------|------------------|
| Print Name / Signature | Date | Print Name / Signature | Date | Inspection Level |
| | | Chris Wood | 03/17/2016 | II |

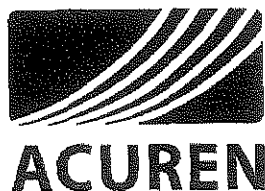
Customer Representative signature certifies that above information is correct, including hours worked and acceptance standard and materials used.

PEER REVIEW (IF APPLICABLE):

Print Name / Signature

Date

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Acuren Group Inc.
8150 West 185th St, Suite H
Tinley Park IL 60487

Tel: 708.532.5100
Fax: 708.532.5101

A Rockwood Company

TANK INSPECTION REPORT

| | |
|-----------------------------------|---------------------------------------|
| Client: ORTEK | Tank Number: 132 |
| Location: McCook, IL. | Report Number: |
| Inspection Date: 3/18/2016 | Inspector: M. Banicki/A. Smith |

TANK DATA SHEET

| | |
|---|---|
| Facility: ORTEK | Tank Number: 132 |
| Construction Code: | Shell Material: Carbon Steel |
| Product / Service: Used Oil | Inspection Type: Internal and External |
| Nominal Diameter: 11' | Nominal Height: 30' |
| Design Specific Gravity: 1.0 | Nominal Capacity: 21,300 Gallons |
| Inspection Code: API 653 | Procedures: EIP-03 |
| Fabricated by: | Erected by: |
| Tank Orientation: Vertical Cylindrical | Maximum Operating Temp: 200F |
| Joint Efficiency: .70 | Foundation: Concrete |
| Status: Out of Service | Year Built: 1952 |
| Design Pressure: Atmospheric | Design liquid height: |
| MDMT: | Roof Type: Self-Supporting Cone |
| Shell Course Total: 5 | Tank Insulated: No |
| Shell Corrosion Allowance: | Tank Type: Welded |
| Corrosion Protection: | Contract No: |



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TANK INSPECTION REPORT

INSPECTION SCOPE SUMMARY

In March 2016, an external and internal inspection was performed in accordance with API 653 on Tank 132 at ORTEK's McCook, IL. facility. Ultrasonic thickness readings were taken and evaluated during the inspection.

The following report includes findings, recommendations, and inspection data. Drawings are used to illustrate data collection points. Acuren Groups final reports have no intent or represent in any form of an engineering evaluation of the serviceability of the tank structure. The Client, Owner and Operator has final acceptance of inspection data submitted.

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TANK INSPECTION REPORT

EXTERNAL INSPECTION

The tank is not insulated. The tank is painted, the paint is in overall good condition with areas of paint failure found at the bottom 3' with light rust occurring.

No significant distortion, scale, or corrosion was found on the shell, nozzles, or roof.

The bottom to concrete interface shows no corrosion and has been recently sealed with a black, tar-like product. The sealant is in good condition.

The level gauge cable is tied off, not allowing free movement of the gauge.

The 2" vent on the center of the roof appears open and clear.

The concrete dike floor and walls are in good condition, minor cracks were found.

No standing water, product, or vegetation was noted in the dike.

The dike is sloped properly to a clear drain.

No name plate or ground cable is attached.

The tank has an access ladder to the roof, the ladder is in good condition.

INTERNAL INSPECTION

Floor:

The floor was found mostly clean with minor areas of black product remaining by the steam coil supports. The floor plates were found mostly free of corrosion except for areas at the n.w. and s.e. sides where multiple pits were found to .06" deep and 2 measured to .09" deep. No distortion or edge settlement was observed.

All welds appeared of good quality and in good condition.

The steam coil had product residue on it but no corrosion or damage was observed.

Numerous thickness readings were taken on the floor and were found at or near the assumed nominal thickness of .250". Minimal underside corrosion was detected.

Shell:

The bottom course was clean, the upper courses have a thin layer of black product remaining.

No distortion or corrosion was found on the butt welded plates.

The nozzles appeared with minimal corrosion. All the couplings for the nozzles are welded, the internal piping that is attached to them is threaded. The internal piping appears in serviceable condition.

Roof:

As viewed from the floor, the self-supporting roof appears free of damage and in serviceable condition.



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TANK INSPECTION REPORT

SUMMARY of RECOMMENDATIONS

Repair or replace the level gauge cable and ensure it has free movement and is reading accurately before placing the tank in service.

Clean the gasket surface of the manway and the cover plate and install a new gasket before placing the tank in service.

THICKNESS EVALUATION and INSPECTION INTERVAL

Ultrasonic thickness measurements were obtained on the floor plates, shell, nozzles, and roof. Readings were found at or near the assumed nominal thickness of the plates, see attached sketches. No previous thickness readings were available. There was no evidence of significant soil side corrosion occurring as determined by the thickness readings on the floor plates being at or near the nominal thickness.

Floor Calculation: .250" in 1952 (original construction).

.160" is the lowest remaining thickness in 2016 (at .09" pit).

With the service life of the tank at 64 years, the corrosion rate is calculated at .002"/year.

Next recommended inspection intervals.

Internal=in 20 years

External with UT Thickness Survey= in 5 years

Inspector Name: Mike Banicki

API# 6021

Inspector Signature: 

Date: 3/18/2016



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Tinley Park IL 60487

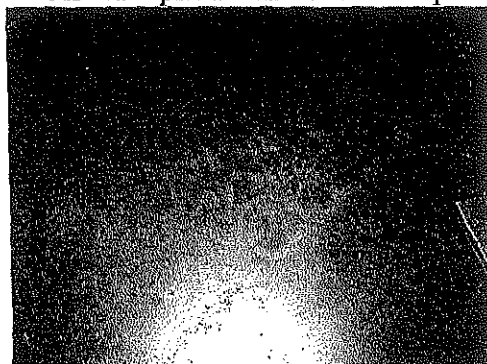
Tel: 708.532.5100
Fax: 708.532.5101

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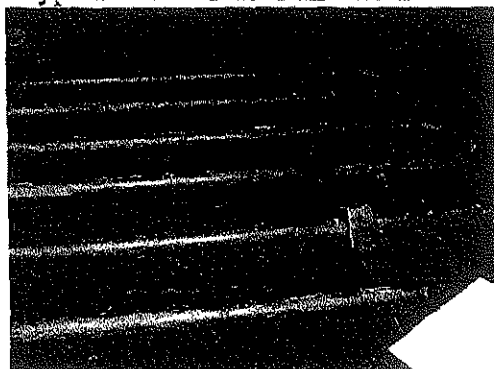
TANK INSPECTION REPORT

PHOTOGRAPHS

One of 2 pits found to .09" deep

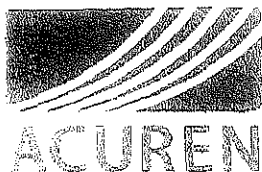


Typical view of floor and steam coil



Overall of exterior



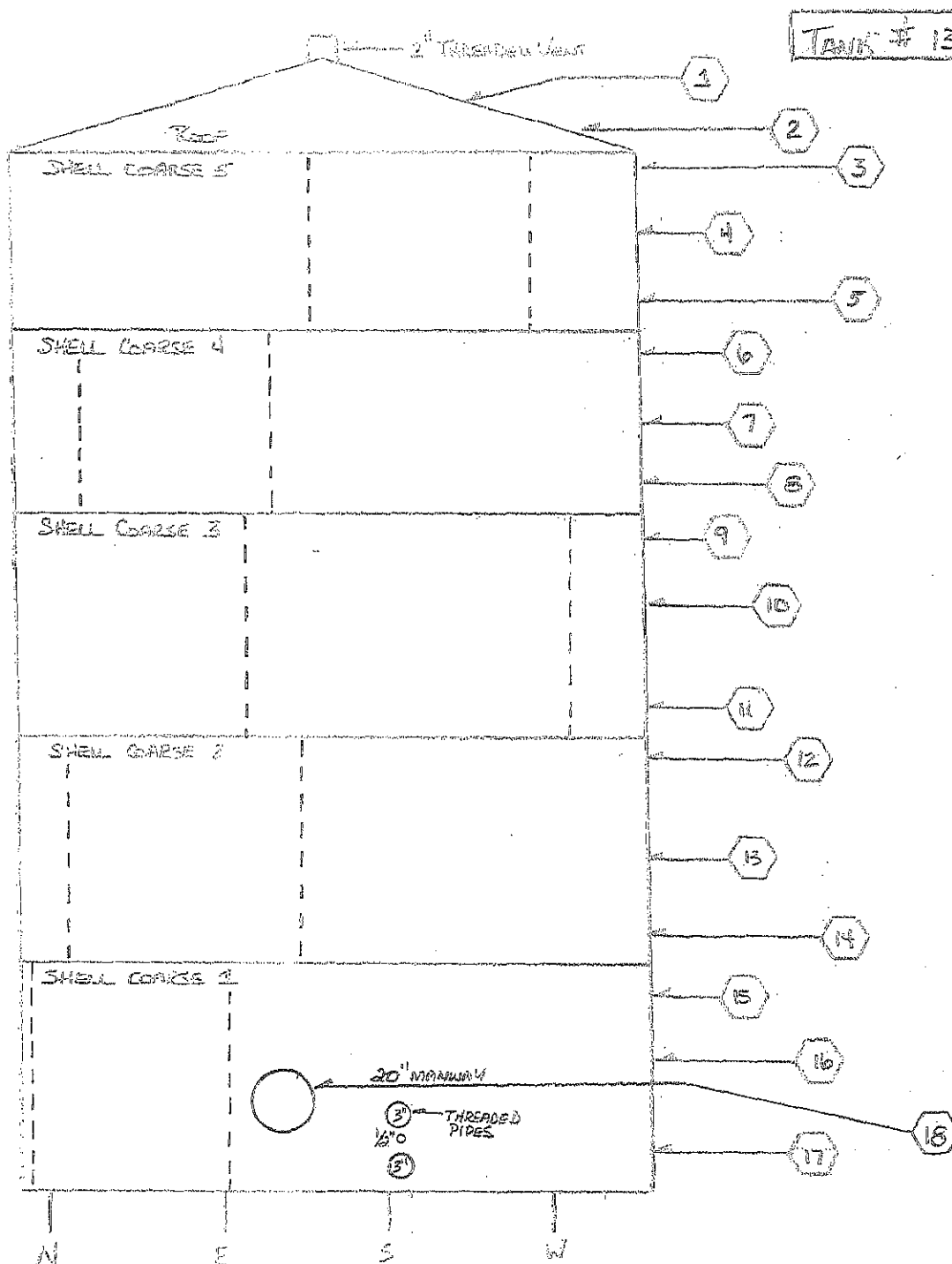


Acuren Inspection, Inc.
8150 West 185th Street, Suite H
Tinley Park, IL 60487
Phn: 708.532.5100
Fax: 708.532.5101

Report #: AD22807
Company Name: ORTEX
Location: Melbrook, IL
Inspection Date: 3-17-16
Technician: CHRIS WOOD / AUSTIN SMITH
SC #: 501574
WO #:

FIELD SKETCH

Page: _____ of _____






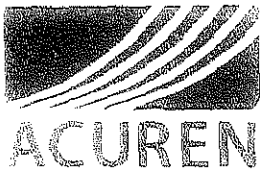
Description: Tank #132 Shell

Ultrasonic Thickness Readings (See Dwg. For details)

Technicians: C. Wood / A.Smith

N/A = Not Accessible

| | | |
|--|--------------|------------------|
| Prepared by: Austin Smith | Approved by: | Date: 03-18-2016 |
| Signature:  | | |

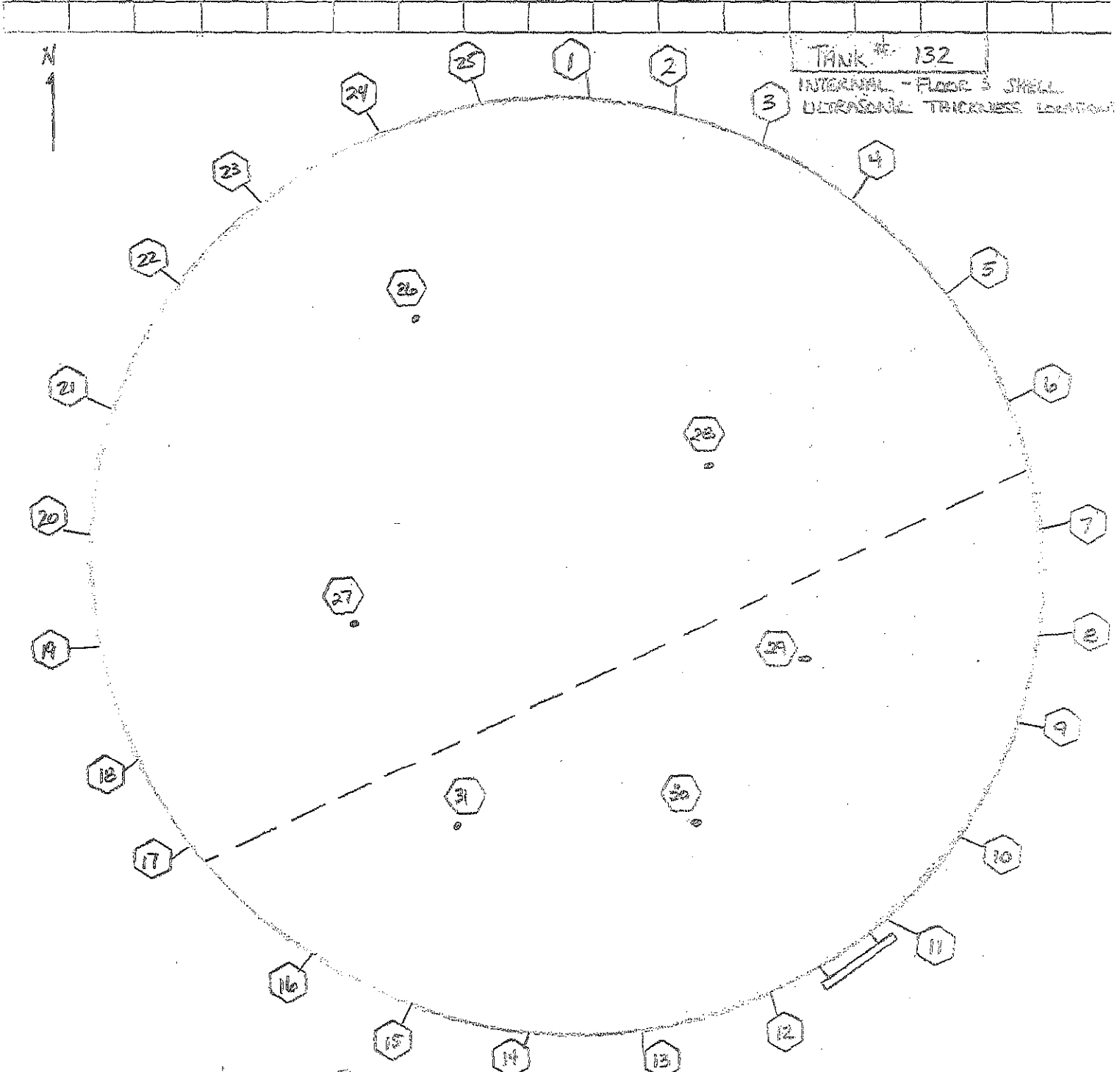


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Tinley Park, IL 60487
Phn: 708.532.5100
Fax: 708.532.5101

Report #: AU22878
Company Name: General
Location: Midwest, IL
Inspection Date: 8-17-16
Technician: Patrick Woods / Austin Smith
SC #: 501574
WO #:

Page: 1 of 3

FIELD SKETCH



SHT #2 FLOOR READINGS WERE TAKEN IN 2 FT INCREMENTS APPROX. 2 IN. FROM THE CHIME.
SHT #3 SHELL READINGS WERE TAKEN IN 1 FT INCREMENTS APPROX. 1 IN. ABOVE THE CHIME.



ULTRASONIC THICKNESS INSPECTION REPORT

Date: 03-17-2016

Description: Tank #132

Sht.#2 Floor

Job Location: Ortek - McCook, IL.

Ultrasonic Thickness Readings (See Dwg. For details)

See sheet #1 for UTT locations

Technicians: C. Wood / A.Smith

| Description | Location | Thickness | | Location | Thickness | | | |
|-------------|----------|-----------|--|--|-----------|--|--|--|
| Floor | 1 | .227" | | 24 | .235" | | | |
| Floor | 2 | .227" | | 25 | .230" | | | |
| Floor | 3 | .232" | | 26 | .225" | | | |
| Floor | 4 | .236" | | 27 | .222" | | | |
| Floor | 5 | .242" | | 28 | .222" | | | |
| Floor | 6 | .243" | | 29 | .225" | | | |
| Floor | 7 | .230" | | 30 | .225" | | | |
| Floor | 8 | .227" | | 31 | .225" | | | |
| Floor | 9 | .237" | | | | | | |
| Floor | 10 | .241" | | | | | | |
| Floor | 11 | .240" | | | | | | |
| Floor | 12 | .242" | | | | | | |
| Floor | 13 | .242" | | | | | | |
| Floor | 14 | .241" | | | | | | |
| Floor | 15 | .243" | | | | | | |
| Floor | 16 | .241" | | | | | | |
| Floor | 17 | .238" | | | | | | |
| Floor | 18 | .226" | | The thickness readings were taken internally on the floor in appox. 1ft increments. Access was limited due to the configuration of the internal coils. | | | | |
| Floor | 19 | .231" | | | | | | |
| Floor | 20 | .242" | | | | | | |
| Floor | 21 | .245" | | | | | | |
| Floor | 22 | .246" | | | | | | |
| Floor | 23 | .242" | | | | | | |

| | | |
|----------------------------|--------------|------------------|
| Prepared by: Austin Smith | Approved by: | Date: 03-18-2016 |
| Signature: <i>A. Smith</i> | | |



ULTRASONIC THICKNESS INSPECTION REPORT

Date: 03-17-2016

Description: Tank #132

Sht. #3 Internal Shell

Job Location: Ortek - McCook, IL.

Ultrasonic Thickness Readings (See Dwg. For details)

Technicians: C. Wood / A. Smith

See Sheet #1 for UTT locations

| <u>Description</u> | <u>Location</u> | <u>Thickness</u> | | <u>Location</u> | <u>Thickness</u> | | | |
|--------------------|-----------------|------------------|--|--|------------------|--|--|--|
| Shell | 1 | .248" | | 24 | .249" | | | |
| Shell | 2 | .250" | | 25 | .249" | | | |
| Shell | 3 | .246" | | | | | | |
| Shell | 4 | .246" | | | | | | |
| Shell | 5 | .245" | | | | | | |
| Shell | 6 | .246" | | | | | | |
| Shell | 7 | .246" | | | | | | |
| Shell | 8 | .245" | | | | | | |
| Shell | 9 | .246" | | | | | | |
| Shell | 10 | .245" | | | | | | |
| Shell | 11 | .245" | | | | | | |
| Shell | 12 | .248" | | | | | | |
| Shell | 13 | .244" | | | | | | |
| Shell | 14 | .244" | | | | | | |
| Shell | 15 | .245" | | | | | | |
| Shell | 16 | .245" | | | | | | |
| Shell | 17 | .245" | | | | | | |
| Shell | 18 | .246" | | | | | | |
| Shell | 19 | .247" | | The readings were taken internally in appox. 1ft increments around the chime weld and 1in. above on the bottom shell course. Access was limited due to the configuration of the internal coils | | | | |
| Shell | 20 | .249" | | | | | | |
| Shell | 21 | .248" | | | | | | |
| Shell | 22 | .249" | | | | | | |
| Shell | 23 | .250" | | | | | | |

| | | |
|----------------------------|--------------|------------------|
| Prepared by: Austin Smith | Approved by: | Date: 03-18-2016 |
| Signature: <i>A. Smith</i> | | |



ACUREN

ULTRASONIC CALIBRATION RECORD

Acuren Inspection, Inc.
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Tinley Park, Illinois 60487
Phone: 708.532.5100

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NDT, Inspection and Materials Engineering
a Rockwood Company

Page 1 of 1

| | | | |
|--|--|----------------------------------|---------------------|
| CUSTOMER: Ortek | | ACUREN SERVICE CALL #: 501574 | DATE: 03/17/2016 |
| LOCATION/ADDRESS: 7601 W. 47th St. McCook, IL | | CUSTOMER CONTACT: Bob | |
| EQUIPMENT ID: TANKS # 120, 122 & 132 | | CUSTOMER PO #: 346683 | CUSTOMER WO #: |

ITEM DESCRIPTION:

API 653

| | | | |
|------------------------|-----------|--|---------------------|
| NDE PROCEDURE UT-2A | REV. 4 | ACCEPTANCE STANDARD: CUSTOMER INFO. | ITEM TEMP: 70 °F |
| | | | CAL BLK TEMP: 70 °F |

| | |
|-------------------------------|-------------------|
| EXAMINER / LEVEL: Level II | EXAMINER / LEVEL: |
|-------------------------------|-------------------|

| | | | |
|---|--------------|------------|--------------|
| Search Unit | | Instrument | |
| Manufacturer: Olympus | S/N: 1102578 | Mode: | Mat'l Cal: |
| Nom. Angle: 0 | Meas.: | Reject: | Damping: |
| Size: .375" | Freq.: 5 MHZ | Rep. Rate: | Filter: |
| Delay: | | Ref. Gain: | Freq.: |
| Cable/Length: 4' | | Scan Gain: | Zero Offset: |
| Technique: <input type="checkbox"/> Longitudinal <input type="checkbox"/> Shearwave | | Delay: | Velocity: |
| <input type="checkbox"/> Other | | Range: | |

| | | | | |
|--|--------------|-----------|---------------|-----------|
| Calibration Block: | TYPE: | MATERIAL: | MANUFACTURER: | S/N: |
| <input type="checkbox"/> Curved <input checked="" type="checkbox"/> Flat | 5 Step Wedge | C/S | | AK-UT-047 |

Narrative:

5 STEP WEDGE

Pre. Cal: .100" - .200" - .300" - .400" - .500"
Post Cal: .100" - .200" - .300" - .400" - .500"

Sketch:

☐ Additional Pages

Instrument Linearity Verification Date Performed:

Screen Size:

Division = Inch(s) Metal Path

| | | | | | | | | |
|--------------|-------|------------------------|----|-------------------|----------|--------|--------|--------|
| Reject Level | % DAC | Scan Sensitivity Level | dB | Calibration Times | Initial: | Check: | Final: | Check: |
|--------------|-------|------------------------|----|-------------------|----------|--------|--------|--------|

CUSTOMER REPRESENTATIVE

ACUREN INSPECTOR

Chris Wood

03/17/2016

II

Print Name / Signature

Date

Print Name / Signature

Date

Inspection Level

PEER REVIEW (IF APPLICABLE):

Customer Representative signature certifies that above information is correct, including hours worked and acceptance standard and materials used.

Print Name / Signature

Date

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A Rockwood Company

TANK INSPECTION REPORT

| | |
|----------------------------------|---------------------------------------|
| Client: ORTEK | Tank Number: 146 |
| Location: McCook, IL. | Report Number: |
| Inspection Date: 2/4/2016 | Inspector: M. Banicki/A. Smith |

TANK DATA SHEET

| | |
|---|---|
| Facility: ORTEK | Tank Number: 146 |
| Construction Code: | Shell Material: Carbon Steel |
| Product / Service: #5 Fuel Oil-Dry | Inspection Type: Internal and External |
| Nominal Diameter: 11' | Nominal Height: 30' |
| Design Specific Gravity: 1.0 | Nominal Capacity: 21,300 Gallons |
| Inspection Code: API 653 | Procedures: EIP-03 |
| Fabricated by: Imperial Steel Tank | Erected by: Imperial Steel Tank |
| Tank Orientation: Vertical Cylindrical | Maximum Operating Temp: 200F |
| Joint Efficiency: .70 | Foundation: Concrete |
| Status: Out of Service | Year Built: 1969 |
| Design Pressure: Atmospheric | Design liquid height: |
| MDMT: | Roof Type: Self-Supporting Cone |
| Shell Course Total: 5 | Tank Insulated: No |
| Shell Corrosion Allowance: | Tank Type: Welded |
| Corrosion Protection: | Contract No: |



TANK INSPECTION REPORT

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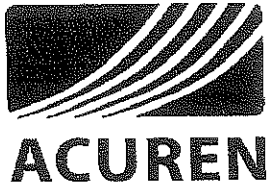
INSPECTION SCOPE SUMMARY

In February 2016, an external and internal inspection was performed in accordance with API 653 on Tank 146 at ORTEK's McCook, IL. facility. Ultrasonic thickness readings were taken and evaluated during the inspection.

The following report includes findings, recommendations, and inspection data. Drawings are used to illustrate data collection points. Acuren Groups final reports have no intent or represent in any form of an engineering evaluation of the serviceability of the tank structure. The Client, Owner and Operator has final acceptance of inspection data submitted.

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TANK INSPECTION REPORT

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EXTERNAL INSPECTION

The tank is not insulated. The tank is painted, the paint is in good condition. No distortion, scale or corrosion was found on the shell, nozzles, or roof. The bottom to concrete interface is mostly caulked, but areas on the north side are damaged. The level gauge cable is tied on the outside not allowing free movement of the gauge. The roof vent is open and clear. The concrete dike floor and walls appear in good condition, minimal cracks were found. The dike floor is sloped to an open drain, no standing water or product was noted. A name plate is affixed and is legible. No ground cable was found.

INTERNAL INSPECTION

Floor:

The butt welded floor was found mostly clean with areas of water and product remaining. No corrosion was found. No distortion or edge settlement was observed. All welds appeared of good quality and in good condition. A steam coil covers the entire floor area, no damage was found on the coil or the supports. Numerous thickness readings were taken on the floor and were found at or near the assumed nominal thickness of .250". No underside corrosion was detected.

Shell:

Oily product was found in areas throughout. No distortion or corrosion was found on the butt welded plates. The nozzles appeared mostly clear with no corrosion.

Roof:

As viewed from the floor, the self-supporting roof appeared free of damage and in serviceable condition.



TANK INSPECTION REPORT

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SUMMARY of RECOMMENDATIONS

Remove areas of loose and damaged caulk at the shell to concrete interface, clean, and apply new caulk or other material to prevent weather from contacting the underside of the tank.

Repair or replace the level gauge cable and ensure it has free movement and is reading accurately before placing the tank in service.

Clean the gasket surface of the manway and the cover plate and install a new gasket before placing the tank in service.

THICKNESS EVALUATION and INSPECTION INTERVAL

UT thickness inspection was performed on the floor plates, shell, nozzles, and roof. Readings were found at or near the assumed nominal thickness of the plates, see attached sketches. No previous thickness readings were available. It can be concluded that there is no corrosion present on the product side of the tank. There was also no evidence of soil side corrosion with the floor plates being at or near nominal thickness.

Recommended inspection intervals.

Internal=20 years

External with UT Thickness Survey= 5 years

Inspector Name: Mike Banicki

Inspector Signature: 

API# 6021

Date: 2/5/2016



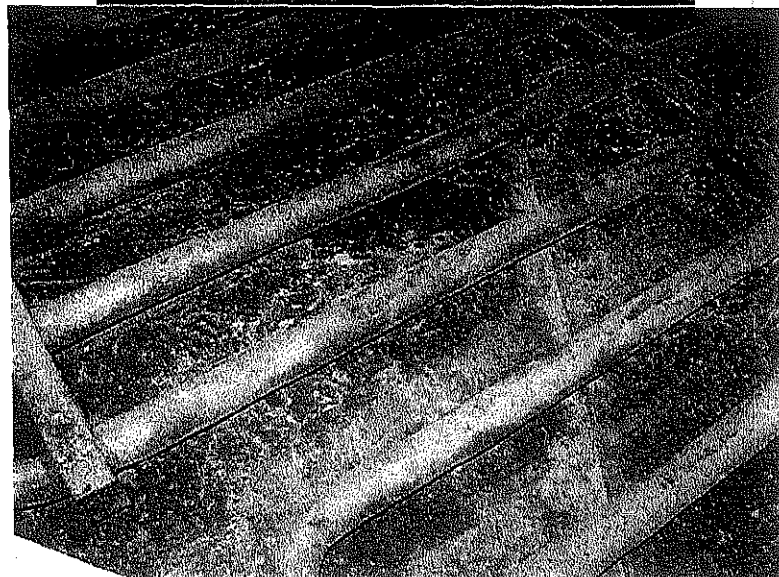
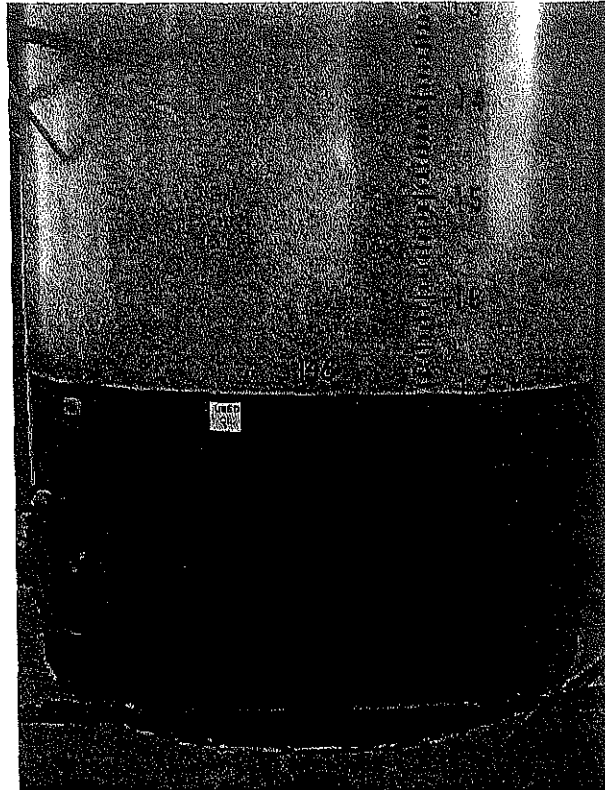
TANK INSPECTION REPORT

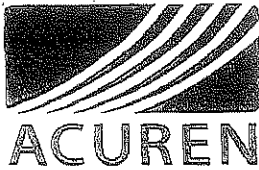
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Tinley Park IL 60487

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PHOTOGRAPHS



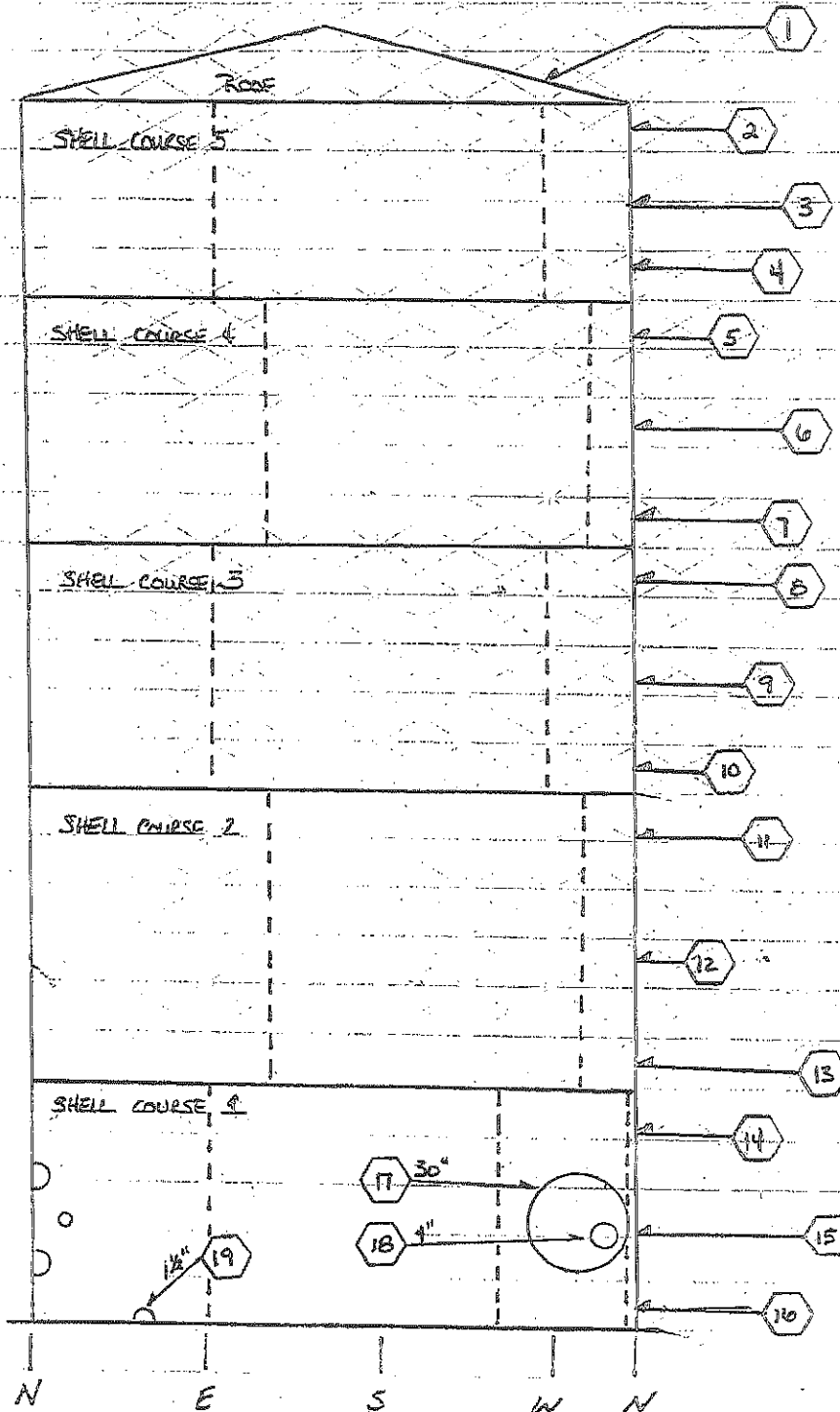


Acuren Inspection, Inc.
8150 West 185th Street, Suite H
Tinley Park, IL 60487
Phn: 708.532.5100
Fax: 708.532.5101

Report #: AD22871
Company Name: ORTEK
Location: McCook, IL.
Inspection Date: 02/04/2016
Technician: A. SMITH / A. LUE
SC #: 495684
WO #:

Page: 1 of 2

FIELD SKETCH



TANK #146
ULTRASONIC THICKNESS
LOCATIONS. (SEE SHT. 2 FOR
ACTUAL READINGS.)



ULTRASONIC THICKNESS INSPECTION REPORT

Date: 02-04-2016

Description: Tank #146 Shell

Job Location: Ortek - McCook, IL. Ultrasonic Thickness Readings (See Dwg. For details)

Technicians: A.Smith / A. Lile

| <u>Description</u> | <u>Location</u> | <u>North</u> | <u>East</u> | <u>South</u> | <u>West</u> | <u>Top</u> | <u>Bottom</u> | |
|--------------------|-----------------|--------------|-------------|--------------|-------------|------------|---------------|--|
| Roof | 1 | .147" | .123" | N/A | .131" | - | - | |
| Shell | 2 | .125" | .107" | N/A | .142" | - | - | |
| Shell | 3 | .133" | .151" | N/A | .161" | - | - | |
| Shell | 4 | .157" | .162" | N/A | .170" | - | - | |
| Shell | 5 | .172" | .158" | N/A | .171" | - | - | |
| Shell | 6 | .175" | .164" | N/A | .173" | - | - | |
| Shell | 7 | .176" | .171" | N/A | .175" | - | - | |
| Shell | 8 | .178" | .169" | N/A | .180" | - | - | |
| Shell | 9 | .179" | .175" | N/A | .187" | - | - | |
| Shell | 10 | .182" | .180" | N/A | .187" | - | - | |
| Shell | 11 | .188" | .187" | .187" | .186" | - | - | |
| Shell | 12 | .191" | .195" | .187" | .185" | - | - | |
| Shell | 13 | .195" | .193" | .185" | .184" | - | - | |
| Shell | 14 | .249" | .246" | .247" | .248" | - | - | |
| Shell | 15 | .249" | .247" | .249" | .250" | - | - | |
| Shell | 16 | .249" | .245" | .251" | .252" | - | - | |
| 30" Manway | 17 | NE .246" | - | SW .246" | - | .245" | .248" | |
| 4" Nozzle | 18 | - | - | - | - | .196" | - | |
| 1-1/2" Nozzle | 19 | - | - | - | - | .149" | - | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

| | | |
|----------------------------|--------------|------------------|
| Prepared by: Austin Smith | Approved by: | Date: 02-05-2016 |
| Signature: <i>A. Smith</i> | | |

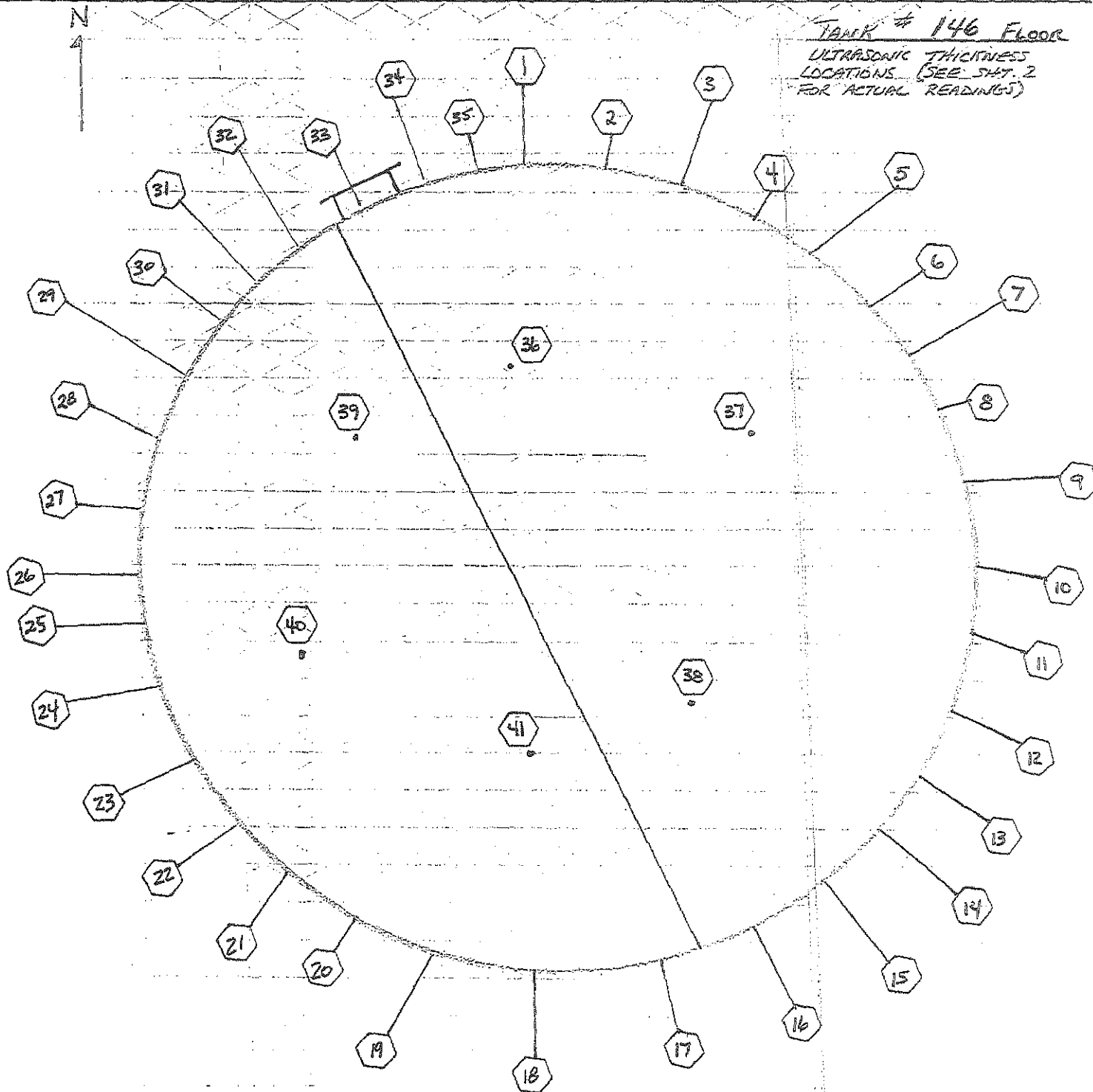


Acuren Inspection, Inc.
8150 West 185th Street, Suite H
Tinley Park, IL 60487
Phn: 708.532.5100
Fax: 708.532.5101

Report #: AC22872
Company Name: ORTER
Location: McCook, IL.
Inspection Date: 02/04/2016
Technician: A. SMITH / A. LILE
SC #: 795684
WO #:

Page: 1 of 2

FIELD SKETCH



TANK # 146 FLOOR
ULTRASONIC THICKNESS
LOCATIONS (SEE SHIT. 2
FOR ACTUAL READINGS)

SHIT. 2 FLOOR READINGS WERE TAKEN IN 1FT INCREMENTS APPROX. 1inch FROM THE CHIME.



ULTRASONIC THICKNESS INSPECTION REPORT

Date: 02-04-2016

Description: Tank #146

Sht.#2 Floor

Job Location: Ortek - McCook, IL. Ultrasonic Thickness Readings (See Dwg. For details)

See sheet #1 for UTT locations

Technicians: A.Smith / A. Lile

| <u>Description</u> | <u>Location</u> | <u>Thickness</u> | | <u>Location</u> | <u>Thickness</u> | | | |
|--------------------|-----------------|------------------|--|--|------------------|--|--|--|
| Floor | 1 | .248" | | 24 | .247" | | | |
| Floor | 2 | .248" | | 25 | .248" | | | |
| Floor | 3 | .251" | | 26 | .248" | | | |
| Floor | 4 | .250" | | 27 | .248" | | | |
| Floor | 5 | .250" | | 28 | .249" | | | |
| Floor | 6 | .250" | | 29 | .250" | | | |
| Floor | 7 | .250" | | 30 | .250" | | | |
| Floor | 8 | .249" | | 31 | .247" | | | |
| Floor | 9 | .249" | | 32 | .247" | | | |
| Floor | 10 | .249" | | 33 | .249" | | | |
| Floor | 11 | .249" | | 34 | .250" | | | |
| Floor | 12 | .233" | | 35 | .250" | | | |
| Floor | 13 | .233" | | 36 | .249" | | | |
| Floor | 14 | .233" | | 37 | .250" | | | |
| Floor | 15 | .234" | | 38 | .250" | | | |
| Floor | 16 | .232" | | 39 | .249" | | | |
| Floor | 17 | .236" | | 40 | .243" | | | |
| Floor | 18 | .239" | | The thickness readings were taken internally on the floor in appox. 1ft increments. No readings were taken internally on the shell due to the location of the steam coils. | | | | |
| Floor | 19 | .240" | | | | | | |
| Floor | 20 | .242" | | | | | | |
| Floor | 21 | .243" | | 41 | .249" | | | |
| Floor | 22 | .243" | | Random UTT on 2" coil | .147" - .154" | | | |
| Floor | 23 | .246" | | | | | | |

| | | |
|---------------------------|--------------|------------------|
| Prepared by: Austin Smith | Approved by: | Date: 02-05-2016 |
| Signature: <i>A.S.M.</i> | | |

CHAIN OF CUSTODY RECORD

| PROJ. NO. | | PROJECT NAME | | | | NO. OF CON- TAINERS | Analyte: | | | | | | Activity Code: |
|---------------------------------|---------|--------------|-------|------|---------------------------------------|------------------------------|---|---|---|-------------|---|----------------|----------------|
| SAMPLERS: (Print Name and Sign) | | | | | | | <div style="display: flex; justify-content: space-around;"> <div>TELP-Volatile</div> <div>TELP-Semis</div> <div>PCBS</div> <div>TPH</div> <div>Flash Point</div> </div> | | | | | | |
| STA. NO. | DATE | TIME | COMP. | GRAB | STATION LOCATION | | | | | | | | |
| 3301601 | 3/30/16 | 1:40p | | X | Soil South of Tank Farm | 1 | X | X | X | X | | | 5-230073 |
| 3301602 | 3/30/16 | 2:02p | | X | Soil South of Tank Farm | 1 | X | X | X | X | | | 5-230179 |
| 3301603 | 3/30/16 | 2:20p | | X | Rail Line Supp ³ Tank Farm | 1 | X | X | X | X | | | 5-230194 |
| 3301604 | 3/30/16 | 2:30p | | X | South Roll-off | 1 | X | X | X | X | | | 5-230195 |
| 3301605 | 3/31/16 | 2:40p | | X | North Roll-off | 1 | X | X | X | X | | | 5-230166 |
| 3301606 | 3/30/16 | 3:20p | | X | South-west Corner | 1 | X | X | X | X | | | 5-230198 |
| 3301607 | 3/30/16 | 3:36p | | X | South-west Corner | 1 | X | X | X | X | | | 5-230180 |
| 3301608 | 3/30/16 | 3:47p | | X | South-west Corner | 1 | X | X | X | X | | | 5-230181 |
| 3301609 | 3/31/16 | 4:04p | | X | South-west Corner | 1 | X | X | X | X | | | 5-230182 |
| 3301610 | 3/30/16 | 4:14p | | X | South-west Corner | 1 | X | X | X | X | | | 5-230183 |
| 3301610sup | 3/30/16 | 4:29p | | X | South-west Corner | 1 | X | X | X | X | | | 5-230184 |
| 3301604L | 3/30/16 | 2:30p | | X | South Roll-off | 1 | X | X | X | X | X | | 5-230170 |
| 3301605L | 3/30/16 | 2:49p | | X | North Roll-off | 1 | X | X | X | X | X | | 5-230171 |
| Relinquished by: (Signature) | | | | | | Date / Time | | Received by: (Signature) | | | | Ship To: | |
| Relinquished by: (Signature) | | | | | | Date / Time | | Received by: (Signature) | | | | ATTN: | |
| Relinquished by: (Signature) | | | | | | Date / Time | | Received for Laboratory by: (Signature) | | Date / Time | | Airbill Number | |
| Chain of Custody Seal Numbers | | | | | | | | | | | | | |

Distribution: White - Accompanies Shipment; Pink - Coordinator Field Files; Yellow - Laboratory File



CHAIN OF CUSTODY RECORD

| PROJ. NO. | | PROJECT NAME | | | | NO. OF CON- TAINERS | Activity Code: | | | | | | | | | |
|---------------------------------|---------|--------------|-------|---|-------------------------|------------------------------|--|-------------|--|--|--|----------------|--|--|----------|--|
| SAMPLERS: (Print Name and Sign) | | | | | | | <div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Analyte:</div> <div> <div style="border: 1px solid black; padding: 2px;">Total Metals</div> <div style="border: 1px solid black; padding: 2px;">Trace Metals</div> </div> </div> | | | | | | | | | |
| STA. NO. | DATE | TIME | COMP. | GRAB | STATION LOCATION | | | | | | | | | | | |
| 3301601m | 3/31/16 | 1:40p | | X | Soil south of tank farm | 1 | X | X | | | | | | | 5-230172 | |
| 3301602m | " | 2:02p | | X | Soil south of tank farm | 1 | X | X | | | | | | | 5-230173 | |
| 3301603m | " | 2:20p | | X | Rail Sump Sludge | 1 | X | X | | | | | | | 5-230174 | |
| 3301604m | " | 2:30p | | X | South Roll-off | 1 | X | X | | | | | | | 5-230175 | |
| 3301605m | " | 2:40p | | X | North Roll-off | 1 | X | X | | | | | | | 5-230176 | |
| 3301606m | " | 3:21p | | X | South-West corner | 1 | X | X | | | | | | | 5-230177 | |
| 3301607m | " | 3:36p | | X | South West corner | 1 | X | X | | | | | | | 5-230178 | |
| 3301608m | " | 3:47p | | X | South-West corner | 1 | X | X | | | | | | | 5-230197 | |
| 3301609m | " | 4:04p | | X | South west corner | 1 | X | X | | | | | | | 5-230196 | |
| 3301610m | " | 4:14p | | X | South West corner | 1 | X | X | | | | | | | 5-230193 | |
| 3301610m | " | 4:29p | | X | South west corner | 1 | X | X | | | | | | | 5-225357 | |
| 3301604m | " | 2:20p | | X | South Roll-off | 1 | X | X | | | | | | | 5-225358 | |
| 3301605m | " | 2:49p | | X | North Roll-off | 1 | X | X | | | | | | | 5-225359 | |
| Relinquished by: (Signature) | | Date / Time | | Received by: (Signature) | | | | Ship To: | | | | | | | | |
| Relinquished by: (Signature) | | Date / Time | | Received by: (Signature) | | | | ATTN: | | | | | | | | |
| Relinquished by: (Signature) | | Date / Time | | Received for Laboratory by: (Signature) | | | | Date / Time | | | | Airbill Number | | | | |
| Chain of Custody Seal Numbers | | | | | | | | | | | | | | | | |

Distribution: White - Accompanies Shipment; Pink - Coordinator Field Files; Yellow - Laboratory File



Decommissioned Tanks
AOC - RCRA-05-2015-0012
Ortek, Inc.
7601 W 47th Street, McCook, IL

| Updated As Of: | 11/19/2015 | | Decommissioned Tanks | | | | |
|----------------------------|------------------------------|----------|---|--|---|---|---|
| TANK NUMBER PER AOC | PREVIOUSLY STORED PRODUCT | CAPACITY | 1. - Liquid and Sludge Has Been Removed | 2. - All Connecting Lines and Piping Have Been Disconnected | 3. - All Valves Have Been Closed and Locked | 4. - Conspicuous Sign With Closure Date | NOTES |
| Area 1 - South Area | | | | | | | |
| D-1 | BLEND TANK | 15,000 | Complete | Complete | Complete | Complete | |
| D-2 | OLY WASTE WATER | 15,000 | Complete | Complete | Complete | Complete | |
| 120 | NOT IN SERVICE | 21,300 | Complete | Complete | Complete | Not complete | RCRA Closure Tank. Tank is empty and not in use. Closure will per the approved RCRA Closure Plan. |
| 122 | NOT IN SERVICE | 21,300 | Complete | Complete | Complete | Not complete | RCRA Closure Tank. Tank is empty and not in use. Closure will per the approved RCRA Closure Plan. |
| 132 | NOT IN SERVICE | 21,300 | Complete | Complete | Complete | Not complete | RCRA Closure Tank. Tank is empty and not in use. Closure will per the approved RCRA Closure Plan. |
| 140 | NOT IN SERVICE | 21,300 | Complete | Complete | Complete | Not complete | RCRA Closure Tank. Tank is empty and not in use. Closure will per the approved RCRA Closure Plan. |
| Area 2 - West Area | | | | | | | |
| 13 | EMPTY | 12,217 | Complete | Complete | Complete | Complete | |
| 15 | EMPTY | 12,217 | Complete | Complete | Complete | Complete | |
| 16 | EMPTY | 12,217 | Complete | Complete | Complete | Complete | |
| 17 | EMPTY | 12,217 | Complete | Complete | Complete | Complete | |
| 18 | EMPTY | 12,217 | Complete | Complete | Complete | Complete | |
| 19 | EMPTY | 12,217 | Complete | Complete | Complete | Complete | |
| 95 | NOT IN SERVICE | 21,300 | Complete | Complete | Complete | Complete | |
| 99 | NOT IN SERVICE | 21,300 | Complete | Complete | Complete | Complete | |
| 306 | NOT IN SERVICE | 21,300 | Complete | Complete | Complete | Complete | |
| 307 | NOT IN SERVICE | 21,300 | Complete | Complete | Complete | Complete | |
| 405 | NOT IN SERVICE | 24,500 | Complete | Complete | Complete | Complete | |
| 500 | ORTEK BASE OIL - 150 | 19,400 | Complete | Complete | Complete | Complete | |
| 501 | ORTEK BASE OIL - 150 | 19,400 | Complete | Complete | Complete | Complete | |
| 502 | ORTEK BASE OIL - 150 | 19,400 | Complete | Complete | Complete | Complete | |
| 503 | ORTEK BASE OIL - 150 | 19,400 | Complete | Complete | Complete | Complete | |
| 504 | ORTEK BASE OIL - 150 | 19,400 | Complete | Complete | Complete | Complete | |
| 505 | ORTEK BASE OIL - 150 | 21,300 | Complete | Complete | Complete | Complete | |
| 506 | ORTEK BASE OIL - 150 | 21,300 | Complete | Complete | Complete | Complete | |
| 507 | ORTEK BASE OIL - 150 | 19,400 | Complete | Complete | Complete | Complete | |
| 508 | ORTEK BASE OIL - 150 | 19,400 | Complete | Complete | Complete | Complete | |
| 509 | ORTEK BASE OIL - 150 | 19,400 | Complete | Complete | Complete | Complete | |

Decommissioned Tanks
AOC - RCRA-05-2015-0012
Ortek, Inc.
7601 W 47th Street, McCook, IL

| Area 3 - Boiler Building | | | | | | |
|--|----------------------|--------|----------|----------|----------|----------|
| 201 | IN-SIDE FLUSHING OIL | 1,500 | Complete | Complete | Complete | Complete |
| 202 | WEST BLENDING PDT | 884 | Complete | Complete | Complete | Complete |
| 204 | NOT IN SERVICE | 2,100 | Complete | Complete | Complete | Complete |
| 205 | NOT IN SERVICE | 2,100 | Complete | Complete | Complete | Complete |
| 206 | NORTH BLEND PDT | 603 | Complete | Complete | Complete | Complete |
| 207 | SUR 2000 | 2,750 | Complete | Complete | Complete | Complete |
| 208 | SUR 2000 | 2,750 | Complete | Complete | Complete | Complete |
| 210 | SUR 2000 | 2,750 | Complete | Complete | Complete | Complete |
| 211 | H CAL 2400 | 2,750 | Complete | Complete | Complete | Complete |
| 212 | H CAL 2400 | 2,750 | Complete | Complete | Complete | Complete |
| 213 | ELCO 102 BLEND | 2,750 | Complete | Complete | Complete | Complete |
| 214 | NIS | 2,750 | Complete | Complete | Complete | Complete |
| 215 | EXXON 60 NEUTRAL | 2,750 | Complete | Complete | Complete | Complete |
| 216 | ELCO 102 BLEND | 2,750 | Complete | Complete | Complete | Complete |
| 217 | RIGID DARK TANK | 2,750 | Complete | Complete | Complete | Complete |
| 237 | INFINEUM 4540 | 6,300 | Complete | Complete | Complete | Complete |
| 238 | IPC 1588 | 6,300 | Complete | Complete | Complete | Complete |
| 241 | ORTEK BASE OIL-150 | 10,500 | Complete | Complete | Complete | Complete |
| 242 | ORTEK BASE OIL-150 | 12,000 | Complete | Complete | Complete | Complete |
| 250 | BLENDING TANK | 7,500 | Complete | Complete | Complete | Complete |
| 251 | BRANINEN 6A | 8,300 | Complete | Complete | Complete | Complete |
| 252 | BLEND TANK | 10,500 | Complete | Complete | Complete | Complete |
| 253 | BLEND TANK | 12,000 | Complete | Complete | Complete | Complete |
| Area 4 - North Side of Boiler Building | | | | | | |
| F21 | DKE WATER | 7,614 | Complete | Complete | Complete | Complete |
| F22 | DKE WATER | 10,555 | Complete | Complete | Complete | Complete |
| 240 | ORTEK BASE OIL-150 | 19,000 | Complete | Complete | Complete | Complete |
| 402 | ORTEK BASE OIL-150 | 21,300 | Complete | Complete | Complete | Complete |
| 404 | ORTEK BASE OIL-150 | 24,500 | Complete | Complete | Complete | Complete |
| 409 | ORTEK BASE OIL-150 | 21,300 | Complete | Complete | Complete | Complete |
| 413 | ORTEK BASE OIL-150 | 21,300 | Complete | Complete | Complete | Complete |
| Area 5 - South Side of Boiler Building | | | | | | |
| 510 | BLENDING PRODUCT | 14,800 | Complete | Complete | Complete | Complete |
| 511 | BLENDING PRODUCT | 14,800 | Complete | Complete | Complete | Complete |
| 512 | BLENDING PRODUCT | 14,800 | Complete | Complete | Complete | Complete |
| 513 | BLENDING PRODUCT | 14,800 | Complete | Complete | Complete | Complete |

Decommissioned Tanks
AOC - RCRA-05-2015-0012
Ortek, Inc.
7601 W 47th Street, McCook, IL

| | | | | | | | |
|--|-----------------------|---------|--------------------|----------|----------|----------|--|
| Area 6 -- East Side of Boiler Building | | | | | | | |
| 52 | OFF ROAD DIESEL | 5,200 | Complete | Complete | Complete | Complete | |
| 14 | OFF ROAD DIESEL | 5,200 | Complete | Complete | Complete | Complete | |
| 110 | NOT IN SERVICE | 15,000 | Complete | Complete | Complete | Complete | |
| 310 | ASPHALT | 21,300 | Complete | Complete | Complete | Complete | Residual asphalt dried in bottom of tank. Exempt from SPCC per 40 CFR 11.1(d)(2)(ii)(C). |
| 403 | USED OIL | 21,300 | Complete | Complete | Complete | Complete | |
| 422 | USED OIL | 21,300 | Complete | Complete | Complete | Complete | |
| 1149 | NOT IN SERVICE | 10,000 | Complete | Complete | Complete | Complete | |
| DT40 | NOT IN SERVICE | 5,000 | Complete | Complete | Complete | Complete | |
| Area 7 - East Side of Maintenance & Lab | | | | | | | |
| T-1 TOWER | USED OIL DISTILLATION | 10,500 | Complete | Complete | Complete | Complete | |
| T-2 TOWER | USED OIL DISTILLATION | 13,350 | Complete | Complete | Complete | Complete | |
| T-3 TOWER | NOT IN SERVICE | 13,350 | Complete | Complete | Complete | Complete | |
| T-4 TOWER | WET OIL DRYING | 13,350 | Complete | Complete | Complete | Complete | |
| T-5 TOWER | NOT IN SERVICE | 13,350 | Complete | Complete | Complete | Complete | |
| T-6 TOWER | NOT IN SERVICE | 13,350 | Complete | Complete | Complete | Complete | |
| HP 6 | ORTEK BASE OIL-150 | 5,800 | Complete | Complete | Complete | Complete | |
| HP 7 | ORTEK BASE OIL-150 | 5,800 | Complete | Complete | Complete | Complete | |
| 20 | DISTILLATE | 5,000 | Complete | Complete | Complete | Complete | |
| 300 | OUTSIDE FLUSHING OIL | 3,170 | Complete | Complete | Complete | Complete | |
| 301 | OLD FIRE BOX OIL TANK | 3,170 | Complete | Complete | Complete | Complete | |
| 316 | T-4T-2 LIGHT FUEL | 15,500 | Complete- see note | Complete | Complete | Complete | |
| 323 | LIGHT FUEL - API | 21,300 | Complete | Complete | Complete | Complete | |
| 324 | OLY WASTE EMULSIONS | 21,300 | Complete | Complete | Complete | Complete | |
| 325 | OLY WASTE EMULSIONS | 21,300 | Complete | Complete | Complete | Complete | |
| 326 | NOT IN SERVICE | 21,300 | Complete | Complete | Complete | Complete | |
| 410 | OLY WASTE EMULSIONS | 21,300 | Complete | Complete | Complete | Complete | |
| 411 | OLY WASTE EMULSIONS | 21,300 | Complete | Complete | Complete | Complete | |
| 412 | ORTEK BASE OIL-150 | 21,300 | Complete | Complete | Complete | Complete | |
| Area 9 - Tank 400 (NW Corner) | | | | | | | |
| 400 | NOT IN SERVICE | 250,000 | Complete | Complete | Complete | Complete | |

Tanks to be Permanently Closed per the Administrative Order on Consent (AOC) dated July 28, 2015 and in accordance with the requirements of 40 CFR 112.2

* In accordance with 40 CFR 112.2 "Permanently closed" means any container or facility for which:

1. - All liquid and sludge has been removed from each container and connecting line;
2. - All connecting lines and piping have been disconnected from the container and blanked off;
3. - All valves (except for ventilation valves) have been closed and locked; and
4. - Conspicuous signs have been posted on each container stating that it is a permanently closed container and noting the date of closure.

Task Completed
RCRA Closure Tanks

